Mountaintop Removal • Ohio's 19th-Century Iron Industry • Bush & Appalachian Coal • Living Sustainably

NOW & THEN

THE APPALACHIAN MAGAZINE

THE CENTER FOR APPALACHIAN STUDIES AND SERVICES • EAST TENNESSEE STATE UNIVERSITY
Volume 18, Number 3 • $7.00

Striking a Balance

Conserving & Developing
Appalachia's Natural Resources

Calling Like a Distant Bird

Listen!
Dressed in the sunrise
I might sing like a red bird.
But I shake my clothing until it fades
so that you and I are dressed alike.
Our souls are aligned.
Be thinking of me.

We are as the red bird.
We are as the blue bird.
We are as the yellow bird.
We are as the mythic bird.

Now!
Look at me ... talk with me ... no apartness.
In the very middle of the morning we stand.
And we walk about in splendor
into the very middle of the rainbow.
Each day we are remade by the spirit
that never dies.

—George Ellison

The Cherokee term *ado:dhlvhi:so?di:yi* means to remake. This concept is closely aligned with *ado:du:hiso?di:yi,* which means to rebeautify oneself. The precise nature of this remaking/rebeautifying process is elusive. In *Walk in Your Soul: Love Incantations of the Oklahoma Cherokees,* educators Jack and Anna Kilpatrick note that "a person who has 'remade' himself has surrounded the ego with a spiritual aura through which the light of the old self is brilliantly refracted" and caution that physical and spiritual attractiveness "are held to be very nearly identical."

"Calling Like a Distant Bird" is a poem about the remaking/rebeautifying process that is based on Cherokee ancient sacred formulas (poems, incantations, or songs).

The sources for "Calling Like a Distant Bird" are primarily Western Cherokee in origin. Unlike the Eastern Cherokee, whose remaking/rebeautifying images tended to be brooding and sometimes erotic, the Western Cherokee concocted images that were often airy and simple. In one of the Western formulas, a conjurer instructs his client to imitate the calls of various birds in order to attract an unresponsive woman.

The numbers four and seven are pre-eminent in Cherokee numerology. Accordingly, the sacred formulas were usually composed in stanzas of either four or seven lines. The middle stanza of "Calling Like a Distant Bird" is highly formulaic: The "red bird" is not a cardinal, the "blue bird" is not a blue bird, and the "yellow bird" is not a yellow-breasted chat. They are generic birds (*tsi:sghwa*) that can change colors at will.

In Cherokee lore, there was a "mythic hawk" named *tsanuwa* that was modeled upon the peregrine falcon. This prototypical bird represented the forces of the upper world. It was evoked to balance the dark forces of the underworld represented by giant prototypical serpents called *uktenas*. In this manner, the Cherokee sought to maintain harmony and balance in the mundane middle world where humans reside.

Numerous Eastern and Western sacred formulas contain stanzas in which the speaker compares himself to four spirit birds. "The spirit that never dies" is one way of reformulating the Cherokee notion of the divine essence that resides in all things.

—G.E.

A resident of Bryson City, N.C., George Ellison is a writer and naturalist with a particular interest in Cherokee studies. He wrote the biographical introduction to the 1992 reissue of James Mooney's History, Myths, and Sacred Formulas of the Cherokees.

Cover photo by Kenneth Murray of a mammoth excavating machine, called a dragline, operating on a Martiki Coal Co. mine near Pikeville, Ky., in 1988. © Kenneth Murray, 1988. Cover layout by Hillhouse Graphic Design, Kingsport, Tenn.

Winter 2001
Volume 18, Number 3

NOW & THEN

THE APPALACHIAN MAGAZINE

Editor Jane H. Woodside
Managing Editor Nancy Fischman
Poetry Editor Linda P. Marion
Reviews Editor Marianne Worthington

Support Staff
Rebecca Grindstaff
Jim Kevin ◇ Charles Moore

Volunteer
Roberta Hissey

Editorial Advisory Board
• Bert Allen • Ed Cabbell • Pauline Cheek • Wallace Coffey • Marat Moore • Rita Quillen • D.J. Roberts-Jessee • Fred Waage • Greg Wallace • Kathleen Wilson • Wayne Winkler •

"If we don't protect the integrity of our resource base, we won't have anything worth a darn."

—**Ken Caplinger**
Deputy Chief, West Virginia State Parks

ARTICLES

7 Planting a New Industry in the North Carolina Mountains *Jane Harris Woodside*

15 The Bush Energy Policy and Appalachia: Back to the Coal Mines? *Carl Zipper*

Would you like to have your own copies of *Now & Then?*

Join the Center for Appalachian Studies and Services. Your $20 annual membership supports all our programs and you get three issues of *Now & Then* magazine.

YES, I want to become a member of the Center for Appalachian Studies and Services and receive three issues of *Now & Then* magazine.

Name: _____
(Please print)

Address: _____

City: _____ State: _____ Zip: _____

E-mail: _____

❑ $20 Payment enclosed ❑ Please bill me

Make check payable to CASS/ETSU and mail with this card to the Center for Appalachian Studies and Services, ETSU, Box 70556, Johnson City TN 37614-0556.

BI 316 L

44 Milkweed

45 Late August, Walking the Ridge *Julie Kate Howard*

REVIEWS

39 ***Prodigal Summer*** *Kathy Griffith Fish*
by Barbara Kingsolver

40 ***West Virginia Quilts and Quiltmakers: Echoes From the Hills*** *Jane Hicks*
by Fawn Valentine with the West Virginia Quilt Search, Inc.

40 ***The Gifts and Thefts*** *Leslie M. LaChance*
by David Staudt

41 Books Worth Mentioning *Marianne Worthington*

42 ***Blind Horse: Poems*** *Joyce Compton Brown*
by Jeanne Bryner

44 Books in Brief *Marianne Worthington*

Now & Then guidelines are available on the World Wide Web at: cass.etsu.edu/n&t/guidelin.htm.

The views expressed in these pages are those of the authors and do not necessarily represent opinions of East Tennessee State University or of the Tennessee Board of Regents.

ETSU East Tennessee State University

East Tennessee State University is a Tennessee Board of Regents institution and is fully in accord with the belief that educational and employment opportunities should be available to all eligible persons without regard to age, sex, race, religion, national origin, disability, veteran status, or sexual orientation. *TBR No. 260-063-01 1.25M*

ISSN No. 0896-2693

© *Copyright by the Center for Appalachian Studies and Services, 2001*

Printed by B & B Printers Inc., Bristol, Tenn.

This issue is dedicated to all those who lost their lives or their loved ones to terrorists on September 11th.

Calling Like a Distant Bird

Listen!
Dressed in the sunrise
I might sing like a red bird.
But I shake my clothing until it fades
so that you and I are dressed alike.
Our souls are aligned.
Be thinking of me.

We are as the red bird.
We are as the blue bird.
We are as the yellow bird.
We are as the mythic bird.

Now!
Look at me … talk with me … no apartness.
In the very middle of the morning we stand.
And we walk about in splendor
into the very middle of the rainbow.
Each day we are remade by the spirit
that never dies.

—George Ellison

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 230 JOHNSON CITY, TN

POSTAGE WILL BE PAID BY ADDRESSEE

Now & Then
Center for Appalachian Studies and Services
East Tennessee State University
Box 70556-1707
807 University Pky
Johnson City TN 37604-9905

To find out more about the Center for Appalachian Studies and Services and all our programs, visit our web site at http://cass.etsu.edu, write to us at CASS, Box 70556, East Tennessee State University, Johnson City TN 37614, or call us at (423) 439-5348.

In Cherokee lore, there was a "mythic hawk" named *tsanuwa* that was modeled upon the peregrine falcon. This prototypical bird represented the forces of the upper world. It was evoked to balance the dark forces of the underworld represented by giant prototypical serpents called *uktenas*. In this manner, the Cherokee sought to maintain harmony and balance in the mundane middle world where humans reside.

Numerous Eastern and Western sacred formulas contain stanzas in which the speaker compares himself to four spirit birds. "The spirit that never dies" is one way of reformulating the Cherokee notion of the divine essence that resides in all things.

—G.E.

A resident of Bryson City, N.C., George Ellison is a writer and naturalist with a particular interest in Cherokee studies. He wrote the biographical introduction to the 1992 reissue of James Mooney's History, Myths, and Sacred Formulas of the Cherokees.

Cover photo by Kenneth Murray of a mammoth excavating machine, called a dragline, operating on a Martiki Coal Co. mine near Pikeville, Ky., in 1988. © Kenneth Murray, 1988. Cover layout by Hillhouse Graphic Design, Kingsport, Tenn.

Winter 2001
Volume 18, Number 3

NOW & THEN
THE APPALACHIAN MAGAZINE

Editor Jane H. Woodside
Managing Editor Nancy Fischman
Poetry Editor Linda P. Marion
Reviews Editor Marianne Worthington

Support Staff
Rebecca Grindstaff
Jim Kevin ◇ Charles Moore

Volunteer
Roberta Hissey

Editorial Advisory Board
• Bert Allen • Ed Cabbell • Pauline Cheek • Wallace Coffey • Marat Moore • Rita Quillen • D.J. Roberts-Jessee • Fred Waage • Greg Wallace • Kathleen Wilson • Wayne Winkler •

Center for Appalachian Studies and Services Director
Jean Haskell

Now & Then has been published three times a year since 1984 by the Center for Appalachian Studies and Services at East Tennessee State University. The Center is a Tennessee Center of Excellence supporting artistic, scholarly, and public service projects in the region. For membership information, visit cass.etsu.edu/member.htm, see *NewsCASS,* or write CASS/ETSU, Box 70556, ETSU, Johnson City TN 37614.

We welcome submissions of poetry, fiction, articles, personal essays, graphics, and photographs concerned with Appalachian life, past and present, if accompanied by a self-addressed stamped envelope. Upcoming deadlines: First Person Appalachia — March 1, 2002 (for Summer 2002), Paying Tribute — July 1, 2002 (for Winter 2002). **Address correspondence to: *Now & Then,*** Box 70556, ETSU, Johnson City TN 37614, or e-mail: Woodsidj @ etsu.edu. **Send Poetry to:** Linda Parsons Marion, 2909 Fountain Park Blvd., Knoxville TN 37917. **Send reviews or suggestions for reviews to:** Marianne Worthington, Communication & Theatre Arts Dept., Cumberland College, 6000 College Station Drive, Williamsburg KY 40769. ***Now & Then*** guidelines are available on the World Wide Web at: cass.etsu.edu/n&t/guidelin.htm.

The views expressed in these pages are those of the authors and do not necessarily represent opinions of East Tennessee State University or of the Tennessee Board of Regents.

ETSU East Tennessee State University is a Tennessee Board of Regents institution and is fully in accord with the belief that educational and employment opportunities should be available to all eligible persons without regard to age, sex, race, religion, national origin, disability, veteran status, or sexual orientation. *TBR No. 260-063-01 1.25M*

ISSN No. 0896-2693

© Copyright by the Center for Appalachian Studies and Services, 2001

Printed by B & B Printers Inc., Bristol, Tenn.

This issue is dedicated to all those who lost their lives or their loved ones to terrorists on September 11th.

"If we don't protect the integrity of our resource base, we won't have anything worth a darn."
—Ken Caplinger
Deputy Chief, West Virginia State Parks

ARTICLES
7 Planting a New Industry in the North Carolina Mountains — *Jane Harris Woodside*
15 The Bush Energy Policy and Appalachia: Back to the Coal Mines? — *Carl Zipper*
20 Mountaintop Removal: Necessity or Nightmare? — *Rudy Abramson*
29 From Ravaged to Recovered — *Timothy G. Anderson*
34 Keeping West Virginia Green — *Michael Barrick*

ESSAYS
3 Living Sustainably, Appalachian Style — *John Nolt*
11 Hollow Journey — *Jack Owens*

FICTION
25 Walking on the Gob — *S.D. Rowe*

POETRY
◁ **Calling Like a Distant Bird** — *George Ellison*
2 The Bee Charmer — *Steve Sparks*
14 These Hills Are His — *Barbara Smith*
24 Making a Living — *Dana Wildsmith*
33 Waterfall — *David Staudt*
38 It's My Dream — *R.A. Skeens*
43 Between Mountains Girl Don't Echo — *Angie Hogan*
44 Milkweed — *Bradford Tice*
45 Late August, Walking the Ridge — *Julie Kate Howard*

REVIEWS
39 *Prodigal Summer* by Barbara Kingsolver — *Kathy Griffith Fish*
40 *West Virginia Quilts and Quiltmakers: Echoes From the Hills* by Fawn Valentine with the West Virginia Quilt Search, Inc. — *Jane Hicks*
40 *The Gifts and Thefts* by David Staudt — *Leslie M. LaChance*
41 Books Worth Mentioning — *Marianne Worthington*
42 *Blind Horse: Poems* by Jeanne Bryner — *Joyce Compton Brown*
44 Books in Brief — *Marianne Worthington*

Making Amends

A while back, when I was trolling for future *Now & Then* themes, a colleague e-mailed me and asked, "How about coal?"

"Oh, right," I thought. "Coal." I did a quick mental inventory and realized that since I'd assumed *Now & Then's* editorship almost six years ago, I had not run many pieces about coal — ironic, considering I'm the granddaughter of a miner. It was, by and large, an unconscious decision.

In part, I think my unconscious made that choice because Appalachia is often so identified with coal. I found I wanted to look beyond coal mining and probe what other forces had shaped life in the region.

Then there's the fact that the whole subject of coal mining is perplexing. It's our country's cheapest, most available fossil fuel, yet it comes with a high environmental price tag. It is perilous work so it's good that increased mechanization means fewer people have to risk their lives, right? Well it might be a positive development if it weren't that, as Carl Zipper observes in "Back to the Coal Mines?" (p. 15), jobs in the mines pay better than most other alternatives in the coalfields.

We've included two articles in this issue that reflect very different points of view on the coal industry. As Zipper notes, the decision as to whether the benefits of turning to coal for our power needs outweigh the costs rests not only on technical and economic facts but on societal values as well. Zipper, on the faculty of Virginia Tech's crop and soil environmental sciences department, believes that clean coal technologies and advanced reclamation methods make using coal a reasonable choice with advantages for both the region and the nation. In "Necessity or Nightmare?" (p. 20), journalist Rudy Abramson paints a vivid picture of the human and environmental disruption caused by mountaintop removal. While Zipper argues that today's reclamation techniques can actually create a more productive forest than native forests growing on thin mountain soils, Abramson quotes former West Virginia Highlands Conservancy president John McFerrin who insists, "The idea that land value is enhanced by mountaintop removal is fiction."

Still we didn't limit this issue to coal, and those articles and essays that deal with other subjects turn out to cast some interesting light on this whole debate. In "From Ravaged to Recovered" (p. 29), geographer Timothy G. Anderson tells the story of the 19th-century charcoal iron industry in Ohio, another extractive enterprise that boomed and then went bust, leaving a ravaged landscape behind. It's a story with something of a surprise ending, environmentally speaking.

My own interview with horticulturist and accidental planner Robin Suggs ("Planting a New Industry in the North Carolina Mountains," p. 7) gives a glimpse at how one economically disadvantaged Western North Carolina county is trying not to repeat mistakes of the past by making sure its economic development efforts are sustainable from the start. And University of Tennessee philosophy professor John Nolt in his essay "Living Sustainably, Appalachian Style" (p. 3) asks whether we could all sidestep the whole energy vs. the environmental quandary by finding ways to live less energy-intensive lives. It's a hypothesis he and his family put into practice each and every day.

By including all these pieces, and more, it is my hope that this coal miner's granddaughter has atoned for my relative neglect of the coal industry — without, that is, falling into the trap of mistaking all of Appalachia for one huge coal camp.

— Jane Harris Woodside, editor

Letters to the editor should be sent with the writer's name, address, and daytime phone number to: Editor, Now & Then, *ETSU, Box 70556, Johnson City TN 37614 or e-mail woodsidj@etsu.edu. Letters may be edited for length and clarity before publication.*

The Bee Charmer

Honey wouldn't ooze from his mouth,
his lips pressed together so tight.
No fear buzzed in the jars of his eyes
as hundreds, thousands of bees
radiated around him, landing on
his shoulders, his naked throat.
There was no attempt at defense. This
was a welcoming, an invitation
to an old friend to come and
share in the hospitality of the hive.

Aunt Dorothy and I stood clear,
fearful behind the raspberry trellises,
and watched for the hundredth time as
Uncle Houston without the bee suit
extracted honey from the white box hives,
a holy man walking on magma.
He told us that the bees were more
afraid of us than we were of them
as they crawled around his mouth,
hung on the weight of his words.

Aunt Dorothy said this is a magic
one is born with; it can't be learned.
I wanted to be my uncle, do what he does,
be simpatico with the bees,
but I shared blood with his wife
who swatted at a wayward worker
that floated over on my uncle's
solicitation to join him at the swarm.
She ducked behind the barbed vines,
pulling me down with her. I peeked
around her butt at the golden veil
swirling around my uncle like an aura.

— Steve Sparks

Steve Sparks recently graduated from the University of Tennessee, Knoxville, where he studied under Now & Then *contributors Marilyn Kallet and Arthur Smith. His poems have been published in* Appalachian Life *and the East Tennessee anthology* Breathing the Same Air. *A poem also will be published in a forthcoming issue of* The North American Review.

Living Sustainably Appalachian Style

by John Nolt

An East Tennessee family tries to live a sustainable life day in and day out.

Over a decade ago, my family and I embarked on an effort to live within the ecological constraints of the Upper Tennessee Valley. The initial site of our experiments was a long-abandoned school on a forgotten edge of a century-old Knoxville suburb. We renovated the building, added some organic gardens and orchards, raised goats, and lived a life that, while austere by some material standards, was rich and colorful in experience. Divorce intervened, and I now live with a reconfigured family in a more conventional suburban home a couple of miles away, but the experiments still continue.

The goal—and it is still a goal, not an accomplishment—is to live sustainably; that is, to meet our needs without harming other people or the natural world, either today or in the future. What first attracted me to the idea was the realization, shortly after the birth of my daughter in 1985, that the world in which she will live will be less natural, less beautiful, and less free than mine.

Over the years, I had observed the Tennessee Valley's thickening smog. I had watched the lush spruce-fir ecosystem along the backbone of the Smokies succumb to imported insects, ozone pollution, and acid rain. I had seen farm after farm consumed by suburban sprawl. I had fretted that sunshine is now more dangerous than it was in my childhood. As a boy, I could play in creeks near my home in northern Ohio. The creeks in which my children would like to play are posted by the Tennessee Department of Environment and Conservation with metal signs that say, "Warning: Avoid Body Contact." That made me angry.

Since anger without action is useless or worse, I sought to channel mine into beneficial work. That's how the ideal of sustainability came to life for me. I had imagined a time when my grown children, living in a sadly degraded world, would ask me and my generation, "How could you let this happen?" I wanted—and still want—to be able to say, "I did what I could."

Living sustainably means different things in different places. In parts of the West and Midwest, for example, where rivers are drying up and whole aquifers are being depleted, sustainability

I had imagined a time when my grown children, living in a sadly degraded world, would ask me and my generation, "How could you let this happen?" I wanted—and still want—to be able to say, "I did what I could."

means, above all, scrupulous water conservation. Not so here—at least not yet. Appalachia's many rivers are constantly renewed by abundant rain. But even here,

things may change as sprawling Atlanta looks northward to slake its gargantuan thirst (see David Lewis Feldman's "Going Thirsty? Appalachia Faces Water Supply Problems" in the spring 2001 issue of *Now & Then*).

For now, however, our most pressing environmental problems include — but are not limited to — air and water pollution, waste disposal, and the ecological inadequacy of our food system. It is to these problems especially that my family has addressed its efforts at sustainable living.

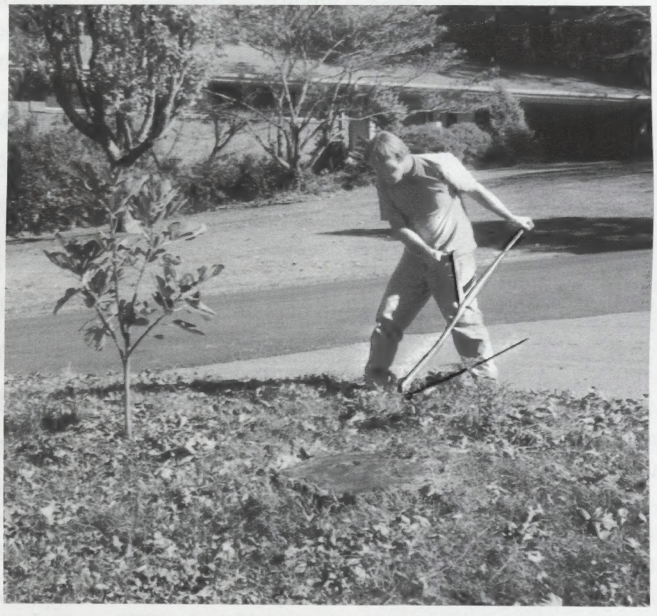
Annette Mendola

John Nolt takes a break from weeding a fall crop of greens, including turnips, lettuce, spinach, and *tatsoi*.

Air and water pollution are still significant problems here, but they are no longer, as they were several decades ago, mainly the fault of dirty industries. The federal Clean Air and Clean Water acts, which regulate industrial pollution, have mostly eliminated the discharge of toxic chemicals from smokestacks or effluent pipes directly into the air or water.

The chief pollutant of Southern Appalachian air today is ozone, and for the ozone problem, everyone, not just industry, is to blame. Ground level ozone — which is not to be confused with stratospheric ozone that shields us from the sun's ultraviolet rays — is a secondary pollutant created on sunny days by chemical reactions between two primary pollutants: oxides of nitrogen and volatile organic compounds. Principal sources of both are coal-fired plants (which generate about 63 percent of our electricity in the Southeast) and internal combustion engines. We add to ozone pollution each time we use an electric appliance or burn fossil fuel.

Ozone damages respiratory tissue and heightens susceptibility to asthma and other respiratory diseases. In high concentrations, it is also toxic to plants. Ozone damage is visible in dozens of plant species in the Great Smoky Mountains, where ozone levels frequently exceed Environmental Protection Agency health standards during the summer months. As motorists in the Upper Tennessee Valley have on average driven farther in larger vehicles (big pickups, SUVs, and vans), the problem has worsened. This year, the American Lung Association ranked Knoxville as the ninth most air-polluted city in the nation, up from 12th in 2000. Chronic lung disease deaths rose 20 percent in Tennessee and 19 percent in North Carolina between 1991 and 1998, compared with 6 percent nationwide. The increase is probably due to a combination of air pollution and smoking.



Annette Mendola

Nolt says mowing with a scythe takes some practice, but with a little experience, any reasonably healthy person can cut grass noiselessly and without pollution.

Crucial, then, to living sustainably in the Upper Tennessee Valley is minimizing the use of electricity and fossil fuels. Living close to where you work, driving a fuel-efficient car, and combining multiple errands into single trips all can help. My family lives about four miles from the University of Tennessee campus where I teach. It's a quick and easy drive, but it's also almost as quick a bike ride. When I don't have kids to take, I commute by bike.

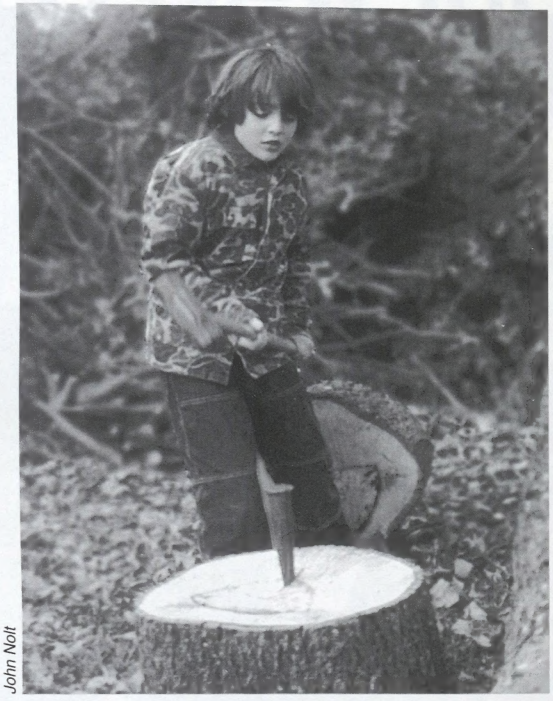
Biking in Knoxville is tricky because its streets, like those of most Appalachian cities, have been designed to accommodate only cars. I take back ways through residential neighborhoods until I get downtown, where the traffic moves slowly enough to be negotiable. I feel safer the nearer I get to campus because drivers there tend to watch for bikes. The weather in Knoxville is mild enough to permit biking year-round. In winter, I dress in layers and keep a good set of rain gear in my pack.

My bike — I call it my "faithful steed" — has been my main means of transportation for 16 years. While riskier than driving — and occasionally uncomfortably hot or cold or wet — biking has palpable personal advantages. Biking burns calories instead of gas. I have never paid dues to a health club. Gliding through the brisk morning air with the wind in my face, I arrive at work awake, alert, and relaxed. A heart-racing run up and down hills in the late afternoon dispels the frustrations of the day.

Cars are not the only internal combustion devices to consider. Contemporary lawn care "requires" at least a gasoline-powered lawn mower and possibly a chain saw, leaf blower, snow

blower, or weed eater. My family has, accordingly, adopted more venerable methods. Rakes suffice for leaves and are far quieter and cheaper than blowers. For cutting wood, including firewood, we use a variety of handsaws. These are surprisingly effective if kept sharp.

For mowing and trimming, we have adopted a technology that evolved to high perfection centuries before the invention of the gas-powered mower or even the muscle-powered reel mower: the scythe. The scythes displayed in Appalachian antique collections are mostly bush scythes, designed for clearing thick underbrush. These are unsuitable for mowing grass. A good grass scythe has a long blade, wide at the base and narrowing to a sharp tip. It holds a razor-sharp edge. After a couple of hours' practice with one, any reasonably healthy person can cut grass to an even height of about three inches — noiselessly and without pollution. All these expedients — rakes, handsaws, and scythes — take more muscle and time than the now conventional methods, but to live sustainably is to reject the now common assumption that healthy outdoor exercise is something to be avoided.



John Nolt

Nolt's son, nine-year-old Ben, splits wood with a sledge hammer and wedge.

Similarly antique technologies help us to minimize electricity consumption. We have two clothes dryers — one for fair weather and one for foul. The fair weather dryer, which is solar-powered, is the clothesline in the backyard. The foul-weather dryer is a comparable set of lines we strung up in our hot, dry attic.

We don't use air conditioning, but our bodies adjust, and we don't miss it. Our house is set in the midst of tall hickory trees, which shade it for much of the day. In the summer, we open the door to the attic and the attic windows so that the hot air flows out and draws in cooler air from along the shaded ground. Ceiling fans provide added comfort on the most sultry days. They are, of course, electric but draw much less power than an air conditioner would.

We also use electricity for lighting, but we've replaced the conventional incandescent bulbs with compact fluorescents wherever possible. While initially more costly, these use about a third as much electricity and so save money in the long run. Unfortunately, our house came with a conventional electric water heater, which is extraordinarily inefficient. Not only are the heating elements themselves inefficient, but the water is kept hot even when not in use, which is a great waste. We plan eventually to switch to an on-demand gas heater, in which water flows through coils that are heated only when the tap is turned on. On-demand water heaters are common in Europe but have not yet caught on in the States.

Unlike many places in the U.S. and the rest of the industrialized world, Appalachia has been slow to institute the practices of waste-reduction, reuse, and recycling.

Like the air, the water of the Upper Tennessee Valley is still polluted — though, again like the air, no longer mainly by industry. The chief problems today are bacteriological contamination (from leaking sewers and septic tanks), siltation (from erosion, often at construction sites), and "nonpoint" chemical pollution (from runoff of oil, gas, antifreeze, fertilizers, pesticides, herbicides, and other chemical contaminants deposited on roads and parking lots, agricultural fields, and suburban lawns). Here again, individuals share much of the responsibility. Reducing automobile use (and hence leakage or spillage of petrochemicals from cars) and eliminating lawn chemicals help to ensure that the water that flows down storm sewers and into rivers and streams is pure. Stopping erosion from your land helps keep the common waters clean and free of silt.

We can also contribute to the health of the land by taking more responsibility for our own waste. Solid-waste landfills are in sheer volume among the largest structures ever created by human beings, and here, as everywhere, we are running out of places to put them. Garbage from my neighborhood in Knoxville is trucked up Interstate 75 to the Chestnut Ridge landfill in Tennessee's Anderson County. Originally a hole in the ground, this landfill has grown into a malodorous mountain nearly as high as the natural mountains that surround it. Though several times upgraded and expanded, it will reach its absolute capacity within a decade or two. Then we'll need a new landfill. Nobody wants a garbage dump in the neighborhood, but there is now no place to put one that is not in somebody's neighborhood. Upon whom are we going to force our garbage next?

Unlike many places in the U.S. and the rest of the industrialized world, Appalachia has been slow to institute the practices of waste-reduction, reuse, and recycling that are essential to reducing the need for new landfills. Knoxville, for example, has no curbside recycling program. You can recycle plastic, glass, paper, and metals, but only if you are willing to sort and bag them yourself and haul them to a recycling center. This we do. And we also strive to select products with minimal packaging and to compost all yard waste and food scraps. As a result, our family of

four sends less than one small plastic grocery bag of garbage per week to the landfill. But that's still too much. This small bag has to go somewhere, and it will do no good wherever it goes.

But what is perhaps our region's most ominous environmental problem has gone almost entirely unrecognized: We can no longer feed ourselves. Once a land of independent and largely self-sufficient farmers, Southern Appalachia is now almost entirely dependent for its food on the cargo of smoke-spewing, fossil fuel-burning 18-wheelers, a large percentage of them making the trip across the continent from California.

Accurate statistics are unavailable, but Southern Appalachia probably imports more of every single category of food than it exports, with the possible exception of beef and dairy products — and even these are questionable. Given the exponential growth of world population, worldwide loss of croplands, global competition for fresh water, and incipient climate change, it is prudent to have a reliable local food supply. But we, unfortunately, have surrendered our farms to the demands of a shortsighted economy.

So living sustainably in the Upper Tennessee Valley also means supporting local agriculture — what little of it remains. The shorter the distance from farm to table, the healthier the food, both for the individual and for the environment. If the food is organic, so much the better, but buying nonorganic produce from your neighbors is probably better for the health of the air, water, and land than buying organic from California. My family shops mostly at the Knoxville Community Food Co-op, where locally produced food is labeled as such, and at a local fruit and vegetable market. Both import much of their produce from outside Southern Appalachia, but at least some of what they offer is locally grown, and we buy local when we can.

Beyond that, we grow our own. Our yard is suburban, largely shaded and considerably less than an acre in area. Yet in the sunny patches, we can grow most of the vegetables and herbs and many of the fruits the family needs from late spring through mid-fall. Southern Appalachian weather is usually mild enough to permit the harvest of greens, and sometimes even root crops, such as turnips or radishes, through the winter. Our methods are strictly organic. For fertilizer, we use rich homemade compost and, occasionally, horse manure from a nearby farm.

John Nolt

Nolt's life partner, Annette Mendola, talks with Évora, three-and-a-half years old, as she hangs laundry outside on a chilly morning. The hickory logs in the background came from a tree in the yard killed by powder post beetles. The logs will be split for firewood and lumber.

Our family of four sends less than one small plastic grocery bag of garbage per week to the landfill. But that's still too much.

Our diet has a distinct seasonal rhythm: We begin in early spring with the greens that have wintered over (spinach, kale, chard), then lettuce, radishes, and turnips in April, peas and broccoli in May. By late June, the abundant summer harvest has begun: corn, beans, collard greens, squash, cucumbers, okra, tomatoes, peppers, garlic, melons, figs, herbs, and an assortment of orchard fruits, nuts, and berries, all ripen in turn. Many persist through the fall. If too much comes in at once, we give it to friends or to the needy or preserve it for the spare winter months. In the fall, we once again plant greens and root crops and set out garlic to overwinter.

These seasonable variations give us a connection to the cycles of nature and are a constant source of hope and celebration. With time and care, the soil darkens and becomes more fertile, and we find satisfaction in knowing that we can feed ourselves without harming — and maybe even helping to heal — the land.

We prefer food that is not only home-grown but home-cooked. The less people have to do with food preparation, the more alienated they become from the land — and from the fundamental Source of their lives. Conversely, the more responsibility we take for our food, the less we drive, the less we waste, and the more our meals become celebrations and sacraments.

While our motives for seeking sustainability are environmental, the benefits are broader. Our work saves money. Our slower and older technologies moderate the pace of our lives. And even if we can't provide our children with a *better* world, maybe in the end, we will be able to say, "We didn't make it worse." N&T

John Nolt is professor of philosophy at the University of Tennessee, Knoxville, where he teaches environmental ethics. He is the author of two books on environmental issues: Down To Earth: Toward A Philosophy Of Nonviolent Living *and* What Have We Done? The Foundation for Global Sustainability's State of the Bioregion Report for the Upper Tennessee Valley and Southern Appalachian Mountains.

Planting a New Industry in the North Carolina Mountains

by Jane Harris Woodside

One Western North Carolina county decides to use native plants as the centerpiece of its economic development strategy. It just might work.

Robin Suggs knew he had to find a way to make a living. A horticulturist by profession, he had moved to Graham County in Western North Carolina in 1996. There he intended to start his own nursery business, but in the meantime, he needed a part-time job to tide him over.

And so it was that this Durham County, N.C., native, whose past experience included marketing and management positions in several garden shops, found himself the county's new part-time planning and economic development director. The county had received short-term state funding to make economic development and planning possible in several western counties. Out of this unusual career path came an equally unusual economic development strategy for Graham County.

Why not, Suggs and others asked, develop a natural products industry, based mainly on native botanicals? Such an industry could potentially do everything from cultivating ginseng and bloodroot to producing, distributing, and marketing its own lines of herbal teas, tinctures, or tablets to one day supplying drug companies with active compounds for prescription drugs. There was no reason that such an industry couldn't be vertically integrated, that everything from finding the raw materials to producing finished products would take place in the county itself so profits accrued along the way would stay in the North Carolina mountains.

The Problem

It isn't hard to see that Graham County has pressing problems. In 1999, with the U.S. unemployment rate at a 30-year low of 4.2 percent, the county's rate stood at 8 percent. Its 1997 per capita income of $15,603 was only 60 percent that of the national average. "Traditional economic development seemed to have left this part of the state behind," Suggs notes.

Located in the southwest corner of North Carolina at the southern edge of the Great Smoky Mountains National Park, Graham County has a population of almost 8,000, including over 500 members of the Eastern Band of the Cherokee, and can claim some of the most rugged terrain in the state. With ridge after ridge of steeply sided mountains, some over 5,000 feet, there is very little flat land to be found. The rural county is about 75 miles from Knoxville, Tenn., the closest major city and location of the nearest airport. It is almost 70 miles from I-40, the closest interstate. Attracting new industry to this neck of the woods is a tall order.

Approximately two-thirds of its 292 square miles are public lands, mainly managed by the U.S. Forest Service. Recent forest management policy changes and the loss of a local sawmill have hurt logging, traditionally an important income source. With a Robbinsville, N.C., plant employing about 500 people, the Virginia-based Stanley Furniture Company, Inc., is the county's largest employer. Others work clearing land, building roads, raising rainbow trout, and working in the area's modest tourist industry.

There are still small family farms, with burley tobacco functioning as a cash crop. "Typically, folks who had their land in burley production had maybe one to three acres in tobacco, a plot the family could look after," says Suggs. But with declining demand, people are looking for alternatives.

"Traditional economic development seemed to have left this part of the state behind," Suggs notes.

The Solution?

By 1998, Suggs was one of several volunteers who had come together to form what is now the Yellow Creek Botanical Institute (YCBI), the Robbinsville-based educational and research nonprofit dedicated to helping identify and develop sustainable economic opportunities in the county. YCBI was incorporated in April 1998 and became a nonprofit in August of 1999. By the time Suggs finished his two-year stint as county planner, YCBI was able to employ him as its first executive director.

With funding from AdvantageWest, Western North Carolina's

economic development commission, Suggs, in his new role as YCBI director, prepared a December 1999 report. That report serves as the blueprint for the Graham County Economic Diversification Program, the name given to efforts to develop a natural products industry. In the report, Suggs argues that Graham County's native plants are an important untapped natural resource. With approximately 2,300 plant species, Southern Appalachia can boast some of the greatest botanical diversity on the planet. Many of those plants grow particularly well in the region's mountains; some can be found nowhere else.

Developing a natural products industry makes sense, says Suggs, because it will not require the county's investing in infrastructure it lacks. Finding ways to turn native plants into an agricultural crop will help preserve the small farms that have historically dotted the landscape, farms that have been rapidly disappearing since World War II. The new industry will also potentially provide jobs and business opportunities to people already living in the area. Perhaps most importantly, building a natural products industry makes sense in terms of the area's history and culture. "It's really a very traditional industry for this region," observes Suggs. "Folks in the mountains have been gathering these plants for generations. I think what they lack, maybe, are some of the marketing and private development skills necessary to compete in the global economy."

Suggs is convinced that a natural products industry is a good solution to the county's problems, but, he warns, it's not going to be a quick fix. "When we started this work in earnest, everybody thought, 'Well, we're just going to start putting stuff in the ground and see how it grows,'" he laughs. "I have to explain to people that, much like developing a business plan for a garden shop, you have to do your market analysis. After all, if there's no market, why bother? Then you look at which species it makes sense to cultivate, and once you've identified the species, you have to figure out exactly how you're going to grow them."

The payoff, he warns, will take years. "That's a basic difference between horticulture and agronomy," he points out. "Many times, horticultural crops take several years to bring to market, but the reward is they're typically a crop with a relatively high value per square foot. They're a lot like Christmas trees." Still, the 40-year-old predicts, "I'd like to think that in the next 15 years, we should see a sizable industry emerge out of this."

The dietary supplements market is not without its problems. Even Suggs, who firmly believes in its potential, describes it as "shallow and volatile."

Good Prospects

The pharmaceutical industry is one possible market for the county's fledgling natural products industry; an estimated one-quarter of all prescription drugs is taken directly or indirectly from plants. Some of these prescription drugs are the result of bioprospecting, the search for economically valuable genetic and biochemical resources from living organisms, such as native plants.

While bioprospecting has typically taken place in the tropics, there is no reason Southern Appalachia couldn't prove to be a fertile hunting ground as well. In fact, YCBI and the Research Triangle Institute (RTI) signed an agreement last year to collaborate on efforts to find funding to establish a program aimed at identifying natural resources in the area that could lead to new drug discoveries. An independent nonprofit headquartered in Research Triangle Park, N.C., the RTI does research and consulting for both government and commercial clients. But pursuing the pharmaceutical market is not YCBI's first priority because new drugs need to obtain Food and Drug Administration (FDA) approval. "If and when a chemical has been isolated and its effectiveness determined, many years of clinical trials follow," says Suggs. "So it's kind of a wild card."

N.C. State University, Research and Extension

A farmer surveys his cultivated ginseng crop growing under a grape arbor. Yellow Creek Botanical Institute's plan suggests ginseng is a good prospect for commercialization.

With funding from the Appalachian Regional Commission, the Washington, D.C.-based agency charged with facilitating economic development in the region, and help from the Herb Research Foundation (HRF) in Boulder, Colo., YCBI did a marketing and feasibility study to determine which species it makes sense to attempt to cultivate. The HRF is dedicated to fostering improved health through the informed use of herbs and medicinal plants. Last August, YCBI released the marketing study. It identified five species that seemed to have good prospects and spelled out a commercialization plan for each.

The economic diversification program plans to concentrate on bloodroot, a plant beginning to replace antibiotics as an animal feed supplement in Europe, and on ramps, the pungent, onion-like variety of a wild lily that is increasingly being used in all manner of cooking. Three of the targeted plants are intended for the dietary supplement market. Those are black cohosh, frequently used in Europe to treat hot flashes; goldenseal, a versatile herb reputed to be useful for everything from preventing and treating various infections to aiding digestion to controlling bleeding; and ginseng, a plant harvested for generations in the Appalachians. Something of an herbal wonder drug, ginseng is believed to boost energy, reduce stress, enhance sexual performance, and in general counter the effects of growing old.

Shallow and Volatile—but Lucrative

The YCBI, then, is putting much of its energy into creating products for the herbal sector of the dietary supplements market. In contrast to prescription drugs, dietary supplements have not been subject to the lengthy FDA approval process since the pas-

sage of the 1994 Dietary Supplement Health and Education Act. The FDA does not step in unless manufacturers claim products treat a disease or it receives numerous reports of adverse reactions; it is the producers who are to guarantee a product's safety.

According to the *Nutrition Business Journal,* herbals had U.S. sales of approximately $4.1 billion in 2000, approximately 25 percent of the dietary supplements industry's total of $16.8 billion. In addition to herbals such as St. John's wort, ginseng, and echinacea, the industry includes vitamins, minerals, and nonherbal specialty items, such as energy supplements.

Even though it currently takes far less time to bring an herbal product to market than a prescription drug, the dietary supplements market is not without its problems. Even Suggs, who firmly believes in its potential, describes it as "shallow and volatile" and acknowledges that it often tends to be based more on fads and consumer mood swings than on science.

The mid-1990s proved to be a very lucrative time to be in the dietary supplements business. Sales grew by as much as 15 to 20 percent a year, and for the first time, customers could find herbals and other supplements not only in health food stores but also on the Internet and on the shelves of Wal-Marts and chain grocery and drug stores. However, the industry's phenomenal growth attracted many new producers, resulting in overproduction and competition that drove down prices. Even more troubling, quality control problems became more pronounced. Some producers, in their rush to get in on the action, were less than fastidious about their formulations. A March 1999 *Consumer Reports* article reported that tests showed a 17-fold difference in the amount of active ingredients from brand to brand in St. John's wort, an herb that has shown promise in treating mild to moderate depression. Another study found that even within a given brand, different bottles of echinacea had different percentages of its purported active compound; echinacea, derived from the purple coneflower, is said to boost the immune system.

The lack of uniformity resulted in consumer dissatisfaction when herbal remedies didn't live up to their claims. Publicity about adverse side effects began to appear, and there were even calls from some in the industry itself for more stringent governmental regulation. Not surprisingly, the dietary supplement bubble burst. Sales began to level off in 1998, and analysts expect a slight decline in 2001.

Many believe, as Suggs does, that if the industry addresses its quality control issues, herbal remedies and other dietary supplements do have legitimate value that can be scientifically proven and that the market can look forward to a promising future. Growing consumer interest in self-care coupled with an aging population will fuel the growth of the market. In fact, many herbal remedies, such as black cohosh for hot flashes, target age-related conditions and ills. Some industry analysts expect sales growth over the next five years in the range of 5 percent.

Quality Control Equals Economic Sense

Suggs needs no convincing that establishing effective quality control measures from the outset is crucial. Says the YCBI director, "I'm a real free market person. I think you have to develop a situation where it makes sound economic sense to do the right thing. That's why we're taking a very systematic, scientifically validated approach. If we develop quality assurance protocols for regional botanicals, we can build an inherent value in regional production. For example, people have the perception that Vidalia onions from Georgia are better than onions grown elsewhere. We want to have a scientifically validated approach. If botanicals come from this part of the Southern Appalachians, we want people to be certain that we've known exactly what bioactive compounds we were looking for and that we can assure a quality product because we used these particular production methods."

Although YCBI has an active board of 11, it has a paid staff of only two: Suggs and Rob Jordan, a horticulturist who does educational outreach and oversees cultivation research. So the organization depends largely on building partnerships with entities such as the RTI and North Carolina State University's Mountain Horticultural Crops Research Station (MHCRS) in Fletcher, N.C., to help develop scientific knowledge and devise quality control measures. For instance, the MHCRS research staff — including Jeanine Davis who holds a doctorate in horticulture and coordinates the North Carolina Specialty Crops Program — has helped YCBI design a study to determine the best way to cultivate bloodroot. Both YCBI, at its 50-acre demonstration farm in the Yellow Creek community, and the MHCRS facility in Fletcher are currently running three-year cultivation trials. "Of course, as we figure out how to grow bloodroot, we'll be working on the question: How do we produce a plant with a high percentage of the active ingredients we're looking for so that we can assure a uniformly high-quality product?" says Suggs.

Down the road, way down the road in fact, Suggs envisions the establishment of an analytical laboratory adjoining a regional processing facility in Robbinsville. The lab would do testing and quality assurance for compounds that would then be graded, dried, cut and sifted, extracted, encapsulated, and packaged at the processing facility. Those plans are ambitious. Until

> "I think you have to develop a situation where it makes sound economic sense to do the right thing." —Robin Suggs

the economic diversification program can raise the capital and build and staff the facilities, Suggs envisions that most lab work will be contracted to outside firms.

Cultivation vs. Wildcrafting

Sustainability is another bedrock upon which the Graham County natural products industry must be built, insists Suggs. Some plants, ginseng for example, are in such demand both in the U.S. and abroad that they fetch hundreds of dollars per pound, prompting more and more people to go out into the woods and wildcraft such medicinal plants. Wildcrafting refers to harvesting of plants growing in the wild. As a result, many of these plants have been decimated. Ginseng, echinacea, black cohosh, and goldenseal all appear on lists of rare or threatened herbs. In response, nonprofits such as East Barre, Vt.-based United Plant Savers and the National Center for the Preservation of Medicinal Herbs in Meigs County in Appalachian Ohio — a project of the community development corporation, Rural Action — are working to save endangered and threatened medicinal plants.

YCBI intends to build sustainability into the Graham County

program, in part by concentrating on natural food markets and similar outlets that draw customers who will pay a premium for organically certified products. "We're not necessarily targeting the Wal-Mart consumer," says Suggs. A third-party certification program, such as the ones already in place for produce and lumber, does not currently exist for herbal remedies. So YCBI is working with the HRF and TRAFFIC to devise an eco-label for wild ginseng. TRAFFIC is an international organization with headquarters in Cambridge, England, that monitors trade in wild plants and animals in an effort to protect them from extinction.

Finding ways to cultivate medicinal plants such as black cohosh whenever possible rather than harvesting them in the wild is the key to guaranteeing that the industry will be a sustainable one. And this is what YCBI is doing. For example, in 1999, YCBI helped one of its board members, Clemson University plant physiology doctoral student Joe-Ann McCoy, receive $10,000 from the Alcoa Foundation to continue her work on black cohosh cultivation. "It may be necessary to wild-harvest some species that are very difficult to cultivate or are needed in such small numbers that cultivation doesn't make sense. But I think with the vast majority, we need to focus on cultivation. So the sustainability aspect is something we've addressed in the methodology," Suggs explains.

Suggs is careful to make the argument for sustainable practices in very pragmatic terms when talking to local people, especially those already foraging for plants such as ginseng. "I say, 'What would you think if we could develop a system where you get paid more for less time in the woods and there might be more ginseng down the road for your children or grandchildren?' You know, you can preach and try to twist arms, but to change folks' behavior, you have to reward them proportionately. We just have to make sure that as this industry develops, folks know that over the long run, sustainable production is where the money is."

First Steps

Right now, Suggs has put his plans to start his own nursery business on hold and is busy trying to raise the money and develop resources to implement the commercialization plans detailed in last August's feasibility study. In the meantime, YCBI's Program Director Rob Jordan is midway through a series of educational workshops aimed at the general public and taking place at various locations. Entitled "Growing Opportunities in Native Plants," the workshops are jointly sponsored by YCBI, the North Carolina Specialty Crops Program, and the Asheville, N.C.-based Mountain Microenterprise Fund, which assists with business start-ups and expansions. They have also received funding from the Winston-Salem, N.C.-based Z. Smith Reynolds Foundation.

This first series is concentrating on sustainable cultivation and wildcrafting: During each two-day workshop, experts share information with potential growers about how to cultivate, market, add value to, and sustainably wildcraft native plants. Suggs hopes these workshops are the beginnings of what will evolve into a school of botanical studies that will serve as an entrepreneurial training program for individuals who might want to start cottage industries based on natural products.

"Asheville is a good example of an area where lots of small herbal industries serving various markets, from local to global, have sprung up," says Suggs. In fact, last August, YCBI took 13 people on a natural products tour and showed them successful industries all over Western North Carolina. "After all," reminds Suggs, "Celestial Seasonings started out as two guys in Aspen who gathered herbs from the wild, brought them back, sewed them into tea bags — and of course, the rest is history."

Phillip Gibson

As part of YCBI's feasibility study Robin Suggs (l), Robert McCaleb (c) from the Herb Research Foundation, and Tony Hayes (r) with Ridge Runner Trading Company surveyed a vacant manufacturing facility as a possible processing site.

Making Do or Doing Without

Graham County has launched an economic strategy that could have some interesting twists and turns ahead. What if they discover that the plants they can grow don't have much of a market, and the most promising markets exist for plants they can't figure out how to produce in sufficient quantities? What if the FDA steps in to regulate the industry once again? What if scientific studies don't support some of the claims for herbal remedies?

But it's an economic strategy that could survive some wrong turns and dead ends. As Suggs points out, "Herbals are about a $4 billion a year industry in the U.S., and if you look at Europe, it's about double that. Even if Western North Carolina counties figure out a way to capture only, say, 1 percent of that, it's a pretty sizable market." In addition, with plans to furnish products to the animal feed supplement and culinary markets, the entire strategy is not totally dependent on the vagaries of the dietary supplement industry.

What is most revolutionary about the Graham County Economic Diversification Program is how rooted it is in a sense of place. The first step in most economic development approaches is to try to turn the area in question into someplace else, usually by investing in the municipal and transportation infrastructure. What the YCBI has done instead is to take a hard look at how it can improve the local economy by using the county's existing resources and strengths, by devising an approach that makes sense in terms of the place's history and culture. It's an economic strategy that's consistent with the time-honored mountain tradition of "making do or doing without."

If it works, it will point the way for similar programs in other economically disadvantaged rural communities looking for ways to provide their citizens with a way of making a more comfortable living while still staying true to themselves. N&T

Jane Harris Woodside is editor-in-chief of Now & Then.

The logo and drawings are taken from YCBI's web site and are used with permission.

Hollow Journey

by Jack Owens

A trip to his childhood home in a West Virginia coal camp reconnects a man with his roots.

I stood at the top of #6 Hollow in Jenkinjones, West Virginia, where McDowell County ends and Virginia begins just over the mountain. I hadn't been back to the bottom of West Virginia in three decades. I was too busy being an FBI agent and raising six children, too occupied to feel the pull of my roots.

The quiet struck me. The sounds I'd grown up with in the 1940s and 1950s were gone: miners walking up the hollow to the #6 mine, trains pulling in and out of the tipple, cars going to the Company Store, women calling to one another and to their children over backyard clotheslines.

I stared at the cinder block remains of what had been my Pocahontas Fuel Company-owned home. It was the last place I'd lived before my father moved us away. There was no roof over the skeletal walls, no floors or the expansive porch that covered two sides of the house, a swing on each side. Weeds and vines grew thick and tall through the middle of where my younger brother had played with toy soldiers on hardwood and linoleum. A tree hovered over the back of the house where the kitchen had been, one of its limbs orphaned at an odd angle as though it didn't belong to the rest of the tree. West Virginia was like that — a curiosity, cockeyed, left to itself, enduring, beautiful.

A rain was coming, which seemed appropriate as I surveyed the barren walls. Although the wooden front door was gone, the opening was there, and I saw inside to where there was once a staircase leading up to the bedroom my brother and I shared, where we were one night when I awoke frightened. I was twelve, knew the moment I opened my eyes that something was wrong. I heard grown-ups downstairs, sensed the tension in their voices. I heard my father's commanding words and my grandfather's fast-paced speech, deep Southern. There were other voices I didn't recognize. I guessed my grandmother and mother were in the kitchen, making sausage, eggs, thick white gravy, biscuits from scratch, coffee black as coal — the things they always did when something went wrong in the mines.

My father said that Baker was a smart

Jack Owens

In August 1998, thirty years after leaving, Jack Owens returned to the coal camp of #6 Hollow in Jenkinjones, W.Va.

Jack Owens

The abandoned Pocahontas Fuel Company building once housed the payroll office, a post office, and, in the basement, a pool hall and ice cream parlor frequented by miners and their families.

man, that he would get out alive if he hadn't been killed in the explosion. I listened over the drumming of my heart.

The explosion had occurred in a mine in Amonate, Va., a couple of mountains away from Jenkinjones. Baker was my uncle, the father of four of my cousins, and married to my father's sister, Opal. He was a miner. My father was a miner till he graduated from Concord College and became a teacher. My grandfather was a coal inspector at #6 tipple.

I raised up in my bed and listened. The Virginia State Police had blocked roads leading to the mine at Amonate, allowing only immediate family to get close. Everyone in my living room settled in for the wait. There was always a wait when a mine went bad.

My uncle Baker survived that disaster, went back into the mines to support his family, died at home of a heart attack when he was 50.

I turned away from the cinder block ruins of what had been my home in Jenkinjones below the empty scar in the mountain where #6 tipple had stood. I drove slowly back down the hollow, retracing my way in.

I had been compelled to go back to West Virginia that August day in 1998, driven to return after my grandparents were taken by old age, my parents by cancer, my brother to a heart attack, leaving me with a wife and six children and three grandchildren and feeling oddly alone. I returned to the mountains to reconnect myself with the family I'd lost, to renew my sense of who I was and from where I'd come. I wanted to regain something I'd let slip away: my roots in a West Virginia mining camp where coal was a way of life until it disappeared, as I myself had.

I eased down the narrow hard-top, looked up the hill at the deserted two-story brick building that was once the payroll office where the Company paid the miners in $2 bills. Pocahontas Fuel Company was chiseled in the gray concrete border at the top of the building. There had been a post office on the ground floor, next to the payroll office. The basement contained an ice cream parlor and pool hall, where my grandfather put a cue in my hands and taught me how to shoot, told me not to stare at the albino gentleman who ran the hall.

My grandfather would pick me off the tiled floor for a ride on his shoulders, careful to fix my legs so I wouldn't knock off his thick, wire-rimmed glasses, and carry me into the ice cream parlor for a vanilla in a cone. He'd keep me on his shoulders for as long as I wanted, even though I dripped ice cream on the part he combed down the middle of his full head of gray hair.

Now the interior of the pool hall was gutted and falling down like the rest of the building. There was graffiti on the walls.

Across the street was the mute skeleton of #6 Company Store, where the miners

Jack Owens

The rotting hulk of the Company Store once was a center of community life, a gathering place where local citizens not only purchased goods but also exchanged gossip and information about social events.

gave back the $2 bills the Company paid them. There had been clerks behind the counters till the store went self-service in the 1950s. Now the building was dismal and rotting, the shelves and their magic goods long gone. It was at this store that I first learned to count, walking up the thirteen gray stone steps with my grandfather, counting while he listened. The glass-enclosed community bulletin board at the bottom of the steps to #6 Store was a gathering place for gossip and hand-printed notices about the dates and times for church socials or the next dance in Anawalt or parade in Bluefield, the nearby town that straddled the West Virginia-Virginia line. There were colorful flyers that announced upcoming movies at the theater just down the road, where my grandfather took the tickets and ran the projector. My favorite cowboy was Rex Allen, along with The Red Rider.

Jack Owens

The First United Methodist Church where Jack Owens was baptized is still in use.

I turned away from the shells of the #6 Store and the payroll office buildings and drove slowly down the hollow till I reached the First United Methodist Church of Jenkinjones, where I was baptized one January and grew up attending regular services and revivals in its intimate red-carpeted sanctuary. My grandfather and other men carried in the American flag before the start of services. Sunday school was taught in the basement, where there was also a kitchen. The church was exactly as I remembered it and was still in use. The wooden bulletin board in front announced in white letters the next Sunday service at 10 a.m. The simple porch and bell tower needed white paint, as did the outside door leading into the basement.

The train trestle, smelling of tar, still stood tall behind the church. There were no more Norfolk &Western coal trains pulled by mammoth steam engines going to and from #6 mine. I used to walk with friends on the rails the few miles to Anawalt, get a bottle of pop, then walk back.

I drove a few hundred yards farther down the hollow. The movie theater where Rex played as well as the elementary school had been torn down. Both lots were empty and overrun with weeds.

The #6 Hollow had always been just wide enough for a two-lane road, a row of framed or cinder block houses the Company rented to miners, and a creek that ran behind the houses. A mining camp of several thousand people in the 1940s and 1950s was now reduced to a hundred or so residents who had purchased their homes from the Company when the coal ran out. Many of the old places were now abandoned or gone altogether. Some of the empty lots had trailers on wheels or blocks. A few of the brick coal boxes were still standing, a link with my past that was comforting.

I stopped halfway down the hollow where I'd first lived after my mother carried me home on a train from Fort Hood, Texas. I'd been born in Texas in 1944. I was two months old, and she had to deal with changing cloth diapers and rinsing them in the cramped bathroom on the train, a wartime train filled with servicemen who helped her by taking turns holding me. The train took us to Hinton, W.Va., where the big dam was located, where my grandparents met us. We stayed with them in Jenkinjones while my father went to Europe with his Army unit. He didn't come home until 1946.

I got out of the car and stood on what had been Lot 143 in what the Pocahontas Fuel Company referred to as #6 and #8 Colliery, rent $17.25 per month for a green-and-white wooden house. The lot was empty, the house gone, nothing left of the porch where I used to swing and look up at the top of the mountain, its crest and slopes covered by black slate dumped for decades by Company trucks that were larger than my house. People said that one day, the slate would come down the mountain and bury Jenkinjones.

It happened on a sunny afternoon in May 1955.

Slate roared down the steep incline and across the two-lane onto my front yard. Tons of it pushed the front porch and the swing into my bedroom, buried the living room and dining room, covered the kitchen, shoved the house to the edge of the creek. Splintered and crushed furniture and parts of the house poked out of the pile like toothpicks. The old upright piano where I'd taken my first lessons was in pieces near the top of the dark pile. I saw white piano keys, the black ones blending into the slate.

No one was home that day. We were all safe. The slate buried two houses in #6 Hollow and never touched a soul. Two days later, as work crews were clearing a path through the 30-foot high slide over the two-lane, the mountain moved again and buried a bulldozer and its driver, killing him.

With the engine of my car cooling, I walked to the middle of empty Lot 143, listened to the creek and sparrows calling out from the thick woods of West Virginia oaks, red spruce, and white

Jack Owens

Overgrown Lot 143 stands as a vacant testament to the prediction that came partly true in May 1955: that the town would be buried by slate from the slag pile covering the mountainside above Jenkinjones.

pines. I turned and looked up the side of the mountain, like I'd done from my front porch swing when I was a kid. There were still tons of black rocks staring down at me. It could have been 1955.

I picked up two souvenirs, pieces of slate that were lying in the weeds and tough ground. They blackened my hands. Lot 143 was layered with black stones. The Company hadn't hauled away all the slate those decades ago. They leveled off the lot, left the property higher than it had been. Things from my childhood were still buried under the slag. No other house had been built there.

After knocking on doors and not finding anyone I knew, I drove out of Jenkinjones and #6 Hollow, went to Anawalt and took Highway 161 across Elkhorn Mountain till I came to Route 52, the Coal Heritage Highway that runs from one end of McDowell County to the other, east to west. Everything in McDowell was either *on* or *off of* Route 52. I turned right and headed toward Bluefield and Interstate 77, the spectacular way out of West Virginia through the East River Mountain Tunnel, one of the most beautiful scenes in America.

People leave West Virginia in search of jobs. Some don't return. I *did* come back—and will again. I need McDowell County and West Virginia. They fill a void I can't explain other than love of place and memories, love of family no longer here. I want to give something back to the hollow that shaped me, even if it's only to paint the trim of the Methodist Church in Jenkinjones. Much of who I am is in that narrow hollow, with its cut-off days because the mountain ridges hide the early and late sun.

There's a simple framed photo on my office wall, a black-and-white picture of my newly married parents standing on the wooden sidewalk with my grandparents in front of the house on Lot 143. My father had finished his shift in the mine; my grandfather was dressed for his shift in a miner's hard hat with a light on top. The women wore white short-sleeve dresses, neatly pressed. It was a warm day. There was a smudged coal box behind them. They were smiling into a Kodak Brownie camera.

I'm going to buy Lot 143 in Jenkinjones, then take a wide shovel and start digging, looking for piano keys and the sidewalk to my front porch. N&T

Jack Owens retired from the FBI in August 1999 in order to write. His nonfiction has appeared in The Atlantic Monthly *and* Cats & Kittens.

© Jack Owens, 2001

These Hills Are His

He molded them, leaned His shoulder against the slopes
And with His fingers dug the valleys.
His feet pressed peat to make coal
And to it and the hollows
He assigned what was left of daytime night.
Then He spit out the boulders and seeded the laurel.
From Adam-shed tears came the rivers,
The Kanawha, the Tygart, the Monongahela, the Elk,
Across which He ordered bridges
Covered against ice and snow.
He planted villages along those waters,
And brought us together
With our broken hearts and red-rimmed eyes,
Our blackened lungs and swollen joints,
Broken marriages, sick babies, empty stoves,
Secrets known only to us and to Him.
And into our souls He pressed the strength
To fell trees, split stones, divert rivers,
Build churches, paint schools, butcher hogs,
Survive,
And occasionally sing
As we, too, mold and dig and scrape,
Leaning hard against His hills.

—Barbara Smith

Barbara Smith is a medical ethicist, freelance writer, and editor. She is former professor of literature and writing and chairperson of the division of the humanities at Alderson-Broaddus College in Philippi, W.Va.

The Bush Energy Policy and Appalachia

Back to the Coal Mines?

by Carl Zipper

If the Bush national energy policy becomes law, what will it mean for Appalachia?

President George W. Bush came into office last January with a goal he stated repeatedly while on the campaign trail: to increase the availability of energy supplies to America's people and industries.

Early in his tenure, the president spent a good deal of time discussing the "energy crisis," both personally and through his spokespeople. Last winter and spring, natural gas, gasoline, and heating oil prices shot up across the country. In California, people coped with rolling blackouts due to an energy shortage caused by several factors. Those factors included an unexpected increase in demand generated by the state's booming economy, its 1995 deregulation of the utility industry, and a lack of new power plant construction. The Bush administration argued that the power outages seen on the West Coast could spread throughout the country and that the situation underscored the need to implement a long-term plan to increase U.S. energy supplies.

A few weeks after entering office, the president appointed an energy task force headed by Vice President Richard Cheney. In May 2001, that task force released a complex, detailed 163-page national energy policy report containing more than 100 recommendations. In addition to proposals aimed at increasing domestic fossil fuel energy supplies, including oil and gas, the report's recommendations deal with renewable resources such as solar, wind, and geothermal energy; with energy conservation and nuclear energy; and with the necessity of creating an efficient national electric power transmission grid. The president adopted the Cheney report in short order and began efforts to implement its suggestions by submitting legislation to Congress.

Contrary to what some believe, the Bush energy plan contains no direct incentives to increase coal mining.

For more than 100 years, coal mining has been a dominant influence on community life in many areas of Appalachia. If the Bush administration's national energy policy is put into effect, how will it affect the region?

More Demand for Appalachian Coal?

Coal is the major source of electricity in this country. In fact, more than 50 percent of U.S. electricity is currently generated

ETSU Archives of Appalachia, James Garvin Ellis Negatives Collection

Deregulation, unexpected increases in demand for electricity, and a lack of new power plant construction caused rolling blackouts in California during 2001. Some believe those same factors could lead to problems in other parts of the U.S.

from coal, and more than 90 percent of the coal burned in the U.S. today is used to make electric power.

Contrary to what some believe, the Bush energy plan contains no direct incentives to increase coal mining. However, by encouraging the production of electricity by coal-fired power plants, the plan would certainly result in more demand for coal throughout the U.S.

For example, the Cheney report calls for the easing of some complex environmental regulations; such a move would potentially result in increased coal-burning power plant construction. It also argues that the federal government in general should "provide greater regulatory certainty relating to coal electricity generation through clear policies that are easily applied to business decisions."

The plan sees strengthening the nation's electric transmission infrastructure as another top priority. This would be accomplished by establishing a national grid, by building new transmission lines to remove bottlenecks, and by giving the federal government authority to condemn private property for transmission line construction. While coal is indeed our most available and lowest cost fossil fuel, most coal reserves are located at some distance from the nation's major population centers. In addition, coal-fired power plants — with site requirements that include water for cooling and access to both rail and transmissions lines — are large and difficult to build adjacent to populated areas.

Finding unoccupied sites that meet those requirements and are close to population centers is tough. Even if such sites can be found, public opposition motivated by aesthetic and pollution concerns often blocks approval of large coal-fired plants. Such plants face fewer obstacles in remote locations. By aiding the movement of electricity from one part of the nation to another, increasing transmission capacity will make the construction of coal-fired power plants close to coal reserves and far from metropolitan areas more feasible.

An increased demand for coal will mean more coal mining jobs. Although mining is hard work and dangerous, jobs in the mines pay higher wages than most alternative employment possibilities in mining communities.

Any action that increases coal-fired generation nationally is likely to stimulate coal mining in Appalachia. Appalachia — even in the face of steadily declining coal prices and the expansion of coal mining in Western states — is still a major U.S. coal producer. The Appalachian region is located closer than the Western mines are to the East Coast's major population centers, where electricity generated from coal remains an important source of energy. According to the 2000 census, about half of the nation's population resides either in Appalachian states or in nearby East Coast areas, such as New England or Florida, that have historically been markets for Appalachian coal.

Not surprisingly, Appalachia's coal producers welcome the president's plan. Construction of gas-fired generating plants, while slow during most of the 1990s, increased dramatically toward the end of the decade in response to electricity wholesale price spikes during periods of peak demand. Despite coal's price advantage over natural gas, its chief fossil-fuel competitor when it comes to generating electricity, construction of new coal-fired generating capacity had virtually ceased throughout the 1990s. This was due to many factors, including the high cost of building coal-fired plants and business uncertainty caused by deregulation combined with the time-consuming process of obtaining environmental permits.

ETSU Archives of Appalachia, Kenneth Murray Collection

Construction of new coal-fired power plants could result in an increase in employment in the coalfields of Appalachia.

However, with the energy price increases that ushered Bush into office and the recent volatility of natural gas prices, power companies have become interested in building generators closer to Appalachian mines so that they can take advantage of low-cost Appalachian coal. If the president implements his energy plans successfully, then there will likely be greater demand for Appalachian coal to supply new coal-fired plants, both within the region and in nearby states. In addition to stimulating more coal mining activity, the construction of new electric power plants in Appalachia would generate more jobs and other economic benefits.

An Uncertain Future for Appalachian Gas

Because of natural gas's low emissions and its ease of handling, the U.S. increasingly turned to this fuel to generate electricity and for other uses such as home heating and industrial fuel. Petroleum products, of course, remain essential transportation fuels. The national energy plan contains numerous initiatives to aid in the exploration, development, and extraction of both gas and oil reserves. How are these gas and oil initiatives likely to affect Appalachia?

Appalachia, with less than 1 percent of total U.S. proven petroleum reserves, will never be an oil-producing area of national importance. Natural gas production, on the other hand, has become an important part of the economy in some Appalachian communities — in Southwest Virginia's Buchanan County, for instance, where gas production increased more than 10-fold during the 1990s. Still, 1999 production from Appalachian wells totaled less than 3 percent of the national output. So while Bush's plan contains incentives to stimulate gas and oil production in areas where reserves are more abundant, including offshore drilling as well as drilling in the previously off-limits Arctic National Wildlife Refuge, none target Appalachia directly.

Nevertheless, Appalachia could still benefit from the plan's proposed incentives aimed at developing improved gas extraction technologies. A method of gas production, known as coalbed methane extraction, was responsible for a significant portion of Appalachia's gas production during the 1990s. In Virginia's Appalachian counties, for example, coalbed methane wells account for more than two-thirds of their gas production.

In coalbed methane extraction, producers drill directly into coal seams rather than down into much deeper geologic reservoirs of conventional natural gas. By injecting fluids and other materials under pressure into the coal seam, energy producers induce methane gas emissions. However, because current methane extraction methods allow only a tiny fraction of the energy embedded in the coal seam to be released as gas, only larger seams with properties favorable to current technology yield enough gas to be worth tapping. Literally billions of tons of coal remain beneath the surface in seams currently either too thin or too deep to be mined.

> Air quality throughout the U.S., including Appalachia, has improved demonstrably over the past 20 years as a result of many factors, including reductions in emissions by power plants and other coal-fired facilities.

The future potential of natural gas production in Appalachia is uncertain. If the national energy plan's technology development incentives yield improved extraction technologies for methane and other combustible gases from coal seams, Appalachia could benefit substantially. On the other hand, unless there is a major change in technology that allows the removal of energy from Appalachia's vast reserves of thin-seam coal without resorting to conventional coal mining, it is likely that large proportions of Appalachia's considerable energy reserves will never be developed.

From Acid Rain to Mercury

If implemented fully, the Bush plan will likely stimulate fossil fuel production, including that of Appalachian coal and, possibly, coalbed methane. But what does the increased use of fossil fuel mean for the environment?

Despite the fact that Appalachia is at some distance from the nation's major population centers, the region's air quality has long suffered due to emissions from a variety of sources. The region is affected not only by its own power plants but also by the high-sulfur coal burned by generators located to the west and carried over Appalachia on prevailing westerly winds. In contrast, air emissions from the combustion of methane released from coal seams, like those of natural gas, have far less impact than the uncontrolled emissions from burning the coal itself.

Sulfur oxides contribute to the acid rain plaguing many parts of Appalachia; acid rain mainly results from sulfur oxides and nitrogen oxides emitted by power plants, automobiles, and other sources. Tighter air pollution controls put in place over the past decade resulted in the measurable reduction of sulfur oxides, nitrogen oxides from coal, and rainfall acidity in the Eastern U.S., including Appalachia. Still, virtually all Appalachian areas receive rainfall that is roughly 10 times more acidic than rainfall in areas such as the Western U.S. that are subject to only minimal levels of acid rain-forming air emissions.

Ground level ozone — considered by many to be the nation's number one air pollution problem — forms when nitrogen oxides, emitted by fossil fuel-burning devices including power plants and cars, combine with volatile organic compounds in the presence of sunlight. Ozone pollution routinely reaches unhealthy levels that violate the Clean Air Act standards in only two Appalachian areas: Southwestern Pennsylvania and Northeastern Georgia. Throughout Appalachia, however, ozone concentrations occasionally reach levels the Environmental Protection Agency (EPA) considers unhealthy for sensitive individuals. In addition, high ozone levels are also known to harm a variety of plants, including forest trees.

Furthermore, both sulfur oxide and nitrogen oxide emissions contribute to the formation of fine particulates — microscopic bits of soot and liquid — that are attracting attention today because of their potential health effects. Scientists suspect they are a factor in respiratory problems ranging from asthma to chronic bronchitis and are partially responsible for increased rates of premature death, especially among elderly individuals already afflicted with heart or lung ailments.

Finally, EPA studies have shown that coal combustion is a leading source of mercury emissions. Mercury accumulates over time in the environment and in individual organisms and can, at sufficiently high concentrations, damage the gums, lungs, kidneys, or nervous system; cause mood swings; or result in birth defects. The EPA is concerned that, with continuing uncontrolled emissions of mercury, environmental concentrations could build up to the point where adverse health effects become evident.

Cleaning Up the Air

Still, air quality throughout the U.S., including Appalachia, has improved demonstrably over the past 20 years as a result of many factors, including reductions in emissions by power plants and other coal-fired facilities. Particulate control equipment, now standard for virtually all coal-fired plants, has dramatically reduced emissions of coarse particulates, or ash.

Sulfur oxide emissions have also declined markedly in response to the EPA's acid rain program, established by the 1990 amendments to the Clean Air Act. This program, implemented in 1995, limits sulfur oxide emissions from electric power plants by establishing a national cap. The EPA, in turn, grants each individual power plant a certain number of emission allowances per year, with the total number of allowances adding up to the national cap. An allowance — which can be bought, sold, or banked for use in future years — authorizes a unit to emit one

> Advanced reclamation methods exist that are capable of producing forests that are actually even more productive than native forests growing on thin mountain soils common in unmined Appalachian areas.

ton of sulfur dioxide during that particular year or any subsequent year. At the end of the year, each electricity generator emitting sulfur oxide surrenders back to the EPA allowances equivalent to its annual emissions. Power plants emitting pollutants in excess of allowances held must either obtain additional allowances from another source or face stiff penalties.

In addition, scrubbers are already in use at about one in five of all coal-fired generators in the U.S., and power companies are in the midst of new installations in response to the implementation of the more restrictive phase 2 of the acid rain program, which went into effect in 2000. Although expensive to install and operate, scrubbers can reduce sulfur oxide emissions by 95 percent or more over uncontrolled emission levels. In addition, due to tightening clean air regulations, many electricity generators are currently installing a nitrogen control technology known as catalytic reduction.

Putting air controls in place is an expensive proposition. U.S. utilities have already spent well over $10 billion installing scrubbers, a cost that industry has passed on to the consumer in the form of higher rates. Have reductions in sulfur oxide emissions by coal-fired plants been enough to protect the health of Appalachia's residents and its forests? Have they been worth the cost? Should electricity producers be required to bear the costs of advanced emission control technologies, given that these costs would of necessity be passed on to customers?

Unfortunately, the world of science is not well-equipped to provide definite answers to such questions, answers that depend on social values as well as technical and economic facts. What is clear, however, is that Appalachia will benefit from further reductions in air emissions from electric power plants.

Clean Coal Technologies

Bush's plan calls for just that. Two of the plan's major proposals directly address air emissions from power plants. The first such recommendation advocates the establishment of a flexible, market-based program to reduce emissions of nitrogen oxide and mercury and to continue decreasing sulfur dioxide emissions. That program would be modeled after the EPA's existing acid rain program.

The second recommendation calls for a $2 billion investment over 10 years in efforts to develop clean coal technologies that will reduce emissions of nitrogen oxides, sulfur oxides, and mercury. The energy task force designed this investment program to develop coal combustion and emission-control technologies that improve upon the environmental performance of today's cleanest coal-burning electricity generators. For example, gasification combined-cycle (GCC) electricity generators gasify coal prior to combustion to eliminate most air pollutant emissions. Prototype GCC units operating today reduce sulfur oxide and nitrogen oxide emission levels by 98 percent and 90 percent, respectively; the U.S. Department of Energy expects that additional technology development will yield further improvements in pollution reduction efficiency. An additional benefit of these emerging clean coal technologies is more efficient coal utilization, which has the potential to reduce emissions of carbon dioxide and other greenhouse gases believed by some to be responsible for global warming.

The Bush plan also includes measures aimed at protecting the environment. True and widespread regional benefits are likely if the government implements these recommendations along with those intended to stimulate energy production.

Tennessee Valley Authority

Concerns about air quality throughout the U.S., including Appalachia, have been addressed by tighter air pollution controls required by federal legislation. Power generating companies have reduced emissions over the past 20 years with particulate control equipment, now standard for virtually all coal-fired plants, such as the John Sevier plant near Rogersville, Tenn.

Scientific research has demonstrated that pollutants, including those emitted by coal-fired power plants, have damaged Appalachia's forests. However, the region's forests are without question better off than they would have been if pollution control advances had not been recently implemented.

During the 1990s, electric power and coal interests were engaged in a major policy debate with the environmental community as to whether or not further reduction of nitrogen and sulfur oxides was worth the increased costs to America's electricity consumers. Bush's plan seeks to curtail that debate by imposing tighter emission caps on coal-fired plants and by investing federal funds in pollution control technology. Such measures will benefit Appalachian forests.

Reclaiming Woodlands

The impact of increased coal mining on the region's forests, however, is another story. In 1999, about one-third of Appalachia's coal came from surface mines. More than one million acres of Appalachian land remain under permit for the mining of coal, including approximately 50,000 acres that received permits during 2000 alone. Because most coal mines are developed in forested areas, the short-term effect of surface mining operations is to reduce native forest cover. Mining has also reduced forest cover over the longer term in some Appalachian states because some previously forested areas are returned to agricultural use immediately after mining but are then abandoned.

It is the reclamation efforts employed that determine the long-term effects of surface mining on land and forest resources.

Mine reclamation practices have improved dramatically since the Surface Mining Control and Reclamation Act of 1977. The brutal destruction of land and water resources that occurred prior to legal controls is a memory — though not a distant memory, due to the scarred hillsides that remain. Today's heavily regulated mining industry routinely restores mined areas to create lands that support forests, agriculture, and similar uses.

What is the ultimate effect of that reclamation on the land? Reclamation procedures employed on many Appalachian mine sites are successful in satisfying federal requirements that the productivity of post-mining agricultural land "equal or exceed" pre-mining productivity levels. Mining firms re-establish agricultural and forest vegetation and control erosion routinely, as required by federal law.

But advanced reclamation methods exist that are capable of producing forests that are actually even more productive than native forests growing on thin mountain soils common in unmined Appalachian areas, according to research conducted by James Burger, a Virginia Tech professor of forestry, as part of the Powell River Project. The Powell River Project, a cooperative program of Virginia Tech and other educational institutions serving communities and natural resource industries in Southwest Virginia's coalfields, conducts research and education programs to enhance restoration of mined lands. Mine operators can create such sites when they use favorable soil and rock materials to create a deep, uncompacted rooting medium with favorable physical and chemical qualities that makes it easier for trees to become established and grow. Unfortunately, the president's energy plan does not contain any recommendations intended to encourage the use of advanced reclamation procedures that maximize forest productivity.

Still, the administration can correct this oversight by proposing a market-based policy consistent with the president's philosophy. For example, the administration could encourage the establishment of a market for the sequestration, or removal, of atmospheric carbon. Such a market could act as an additional incentive, over and above the value of wood produced, for mining firms to establish forests with superior productive potentials through reclamation. This type of market mechanism is a part of the Kyoto protocol, the proposed global treaty to control climate change, but the U.S., under the Bush administration, has not taken that route.

> An additional benefit of these emerging clean coal technologies is more efficient coal utilization, which has the potential to reduce emissions of carbon dioxide and other greenhouse gases believed by some to be responsible for global warming.

Such a market, if implemented, would allow carbon dioxide emitters to offset those emissions with activities designed to extract carbon from the atmosphere. For example, emitters could play a role in establishing productive forests that would use the carbon dioxide for photosynthesis. Under a market-based system, similar to that employed by the acid rain program, power-generating firms would not have to conduct the carbon sequestration themselves. They could instead purchase credits held by others who engaged in activities that draw carbon from the atmosphere.

When reclamation results in land once mined for coal becoming more productive as a forested site, there are both economic and environmental benefits. For instance, owners can benefit economically from the enhanced timber value as well as from the income that could be generated by selling the carbon credits if a market were established. Also, in addition to helping remove carbon from the atmosphere, productive forests with deep soils provide watershed protection because healthy vegetation absorbs rainfall and prevents the rain from washing soil from the land. If the administration does not view markets for carbon credits favorably, perhaps it could develop other policy incentives designed to achieve similar favorable results.

Maximizing Benefits

And finally, we cannot talk about Appalachian resources without talking about the region's most essential and vital resource, its people. How will Appalachia's residents fare under the Bush energy plan?

It is certain that improved air quality and healthier forests will benefit all of Appalachia's people. And of course, Appalachians in the coalfields will benefit economically. An increased demand for coal will mean more coal mining jobs. Although mining is hard work and dangerous, jobs in the mines pay higher wages than most alternative employment possibilities in mining communities. In addition, employed miners have money to spend in other local businesses.

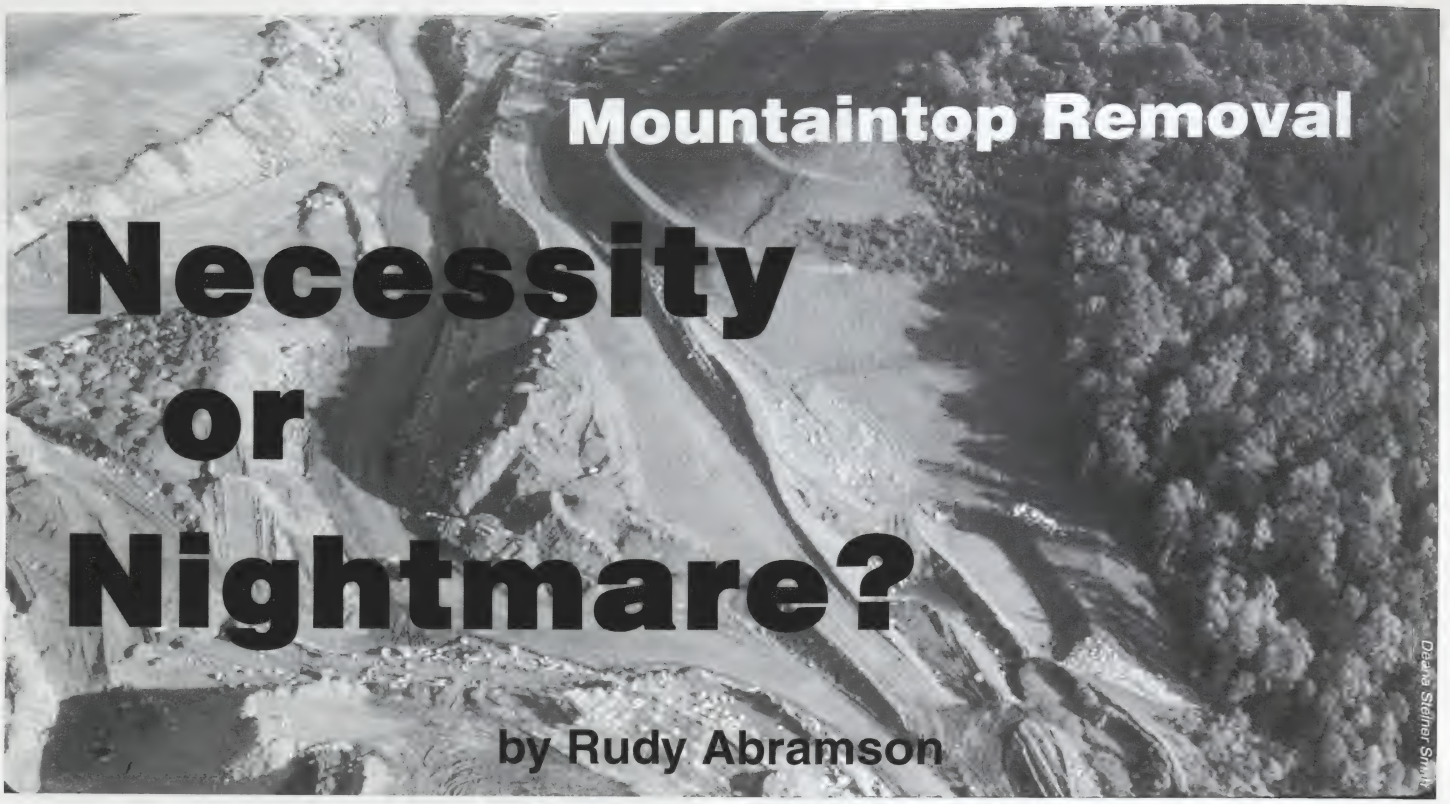
To return to the original question: How will Appalachia fare under the Bush energy plan?

Despite progress in the region as a whole, parts of Appalachia, especially in the coalfields where mining remains a major industry, continue to lag behind the nation economically. Those components of Bush's national energy policy designed to stimulate coal, coal-fired electricity, and natural gas production and use, if put in place, are certain to benefit the region's economy.

The Bush plan also includes measures aimed at protecting the environment. True and widespread regional benefits are likely if the government implements these recommendations along with those intended to stimulate energy production. And finally, although the Bush plan currently lacks incentives to enhance the biological and productive potentials of lands created through reclamation of surface coal mines, Appalachia could certainly benefit if such incentives were built into the policy.

So Appalachia's economy and environment both stand to gain. The region stands to gain economically from increased coal mining — and perhaps from increased gas extraction — but the benefit will be far more widespread if these gains occur while further expanding the environmental protections already in place. N&T

Carl Zipper is an extension specialist in the crop and soil environmental sciences department at Virginia Tech in Blacksburg. He is director of the Powell River Project, which conducts research and education programs to enhance restoration of mined lands in Southwest Virginia's coalfield region, and associate director of the Virginia Center for Coal and Energy Research.



Necessity or Nightmare?

by Rudy Abramson

Proponents see mountaintop removal as the Appalachian coal industry's best hope for staying competitive. Opponents can hardly contain their outrage.

About sunrise, Willard and Evelyn Kelly hear the bulldozer engines start up on the mountain above their house, followed by the clattering of steel treads in a cacophony that will continue until dusk. Less than a mile from their door, yet another of Logan County, W.Va.'s, ridges is being scalped. "Sometimes," says Willard, "it sounds like they're coming right at you."

After the trees and brush are gone and the stumps have been pushed out and the soil has been scraped away exposing solid rock, powerful explosions of petroleum and ammonium nitrate will shatter the rock, and power shovels will begin removing the mountaintop to expose seams of coal. The overburden, as the dirt and rock are called, will be systematically stripped away, and most of it will be dumped into hollows creating "valley fills." Once the layer of coal is removed, the process is repeated. Another 20, 40, 60 or more feet of the mountain will be taken off to reach the next coal deposit.

Never has coal been removed from the Appalachian mountains with such efficiency. Unlike old underground mines that once left half of the coal behind in pillars supporting the roof, the mountaintop removal mine leaves virtually none. Of the 59 million tons of coal produced by West Virginia surface mines last year, 52 million tons came from mountaintop removal operations like those located all across the Kellys' corner of Logan County.

Ever since they were married 30 years ago, Willard and Evelyn have lived in their own secluded hollow on the left fork of Cow Creek, three miles from the Logan-Mingo County line. They settled as close to nature as they could get. The water in the creek was pure enough to drink back then. The air was crystal clear, and on a still morning, they could hear a rooster crow a mile away. The mountains around them were not much changed since the days when deputy sheriffs and mine guards beat labor organizers in the coalfields and Willard's parents arrived from Southwest Virginia.

In the early 1990s, after their five children were grown and Willard was declared totally disabled from a mining accident, he and Evelyn built their dream house. It stood in the back of the lush bottom where the left fork flows between nearly vertical mountainsides on its way to join other streams tumbling down to Island Creek.

It's a sturdy structure of blue siding with white columns at the front door, the kind of place that neither of them had ever seen or imagined when they were growing up. It has extra insulation, airtight doors and windows, and thick hardwood floors supported by oversized joists set just 16 inches apart. They built it to last, for they expected to live in it the rest of their days watching their grandchildren grow up. The hollow, says Willard, "was

Of the 59 million tons of coal produced by West Virginia surface mines last year, 52 million tons came from mountaintop removal operations.

the quietest, most peaceable place you could ever imagine."

Blasting Away

It was.

But soon after the Kellys moved into the new house, blasting started on Mingo Logan Coal Company's Phoenix Mine on a ridge behind them, shattering the peace. Explosions that broke up the rock on the mountain eventually fractured their foundation, opened cracks between the walls and the ceiling, and ruined their well. Thick clouds of dust boiled into the hollow, covering their windows, settling on the porch, regularly making it necessary to wash the whole place down with a hose. In 1996, a deluge that created serious flooding all along Island Creek and its tributaries washed logs, rock, and debris from the mountain down onto their yard, covering their grass with mud and cutting gullies across the property. A bulldozer had to be hired to clean up the mess.

Deana Steiner Smith

Dwarfing other vehicles, a dragline at Arch Coal Company subsidiary Catenary Coal's Samples Mine removes the top of a West Virginia mountain.

From time to time, whenever new damage was conspicuous, they called the state Department of Environmental Protection to complain about the blasting and dust. Officials extended sympathy but generally did nothing. "They would come out and talk to the coal company, but 90 percent of the time, they would say the blasts were in compliance," Evelyn says, recalling only one occasion when the state concluded that Mingo Logan Coal Company had violated blasting rules. The burden of proof in contested cases rests with aggrieved homeowners.

Now it is generally quiet behind the house, but the Kellys expect the situation to get even worse when blasting starts on the ridge in front, for the base of the mountain is no more than 100 yards from their porch. "We're going to get fly rock and dirt from the blasting," she says, "and our grandkids are going to be in real danger from rock rolling down the hill."

Other families along other Island Creek tributaries are similarly in the shadow of future mine sites, as are scattered residents and hamlets in the hollows of Boone, Fayette, Lincoln, Mingo, Raleigh, Webster, and Wyoming counties, as well as Logan. Because "strip jobs" are growing larger and increasingly impinging on populated areas, mountaintop removal has stirred Central Appalachia's most intense environmental debate since publication of *Night Comes to the Cumberlands,* Harry Caudill's indignant expose that brought Appalachian strip mining to national attention in 1962.

Legal Challenges

Lately, environmental groups and emboldened coalfield residents have increasingly taken their issues to federal court, concentrating their legal attacks on state and federal regulators for failing to enforce the 24-year-old federal Surface Mining Control and Reclamation Act (SMCRA) and a variety of state and federal regulations. Citing mountaintop mining projects in the Island Creek area, the Huntington, W.Va.-based Ohio Valley Environmental Coalition and the Citizens Coal Council, with offices in Washington, D.C., and Denver, sued to force state and federal regulators to evaluate mountaintop mines' long-term impact on streams more stringently. U.S. District Judge Robert Chambers refused to block a new Mingo Logan mine not far from the Kellys' hollow, noting a need for more compelling evidence, but he has refused to dismiss the case outright, leaving alive an issue with the potential for far-reaching impact.

The litigation over hydrologic assessment follows a far more publicized suit that has put mountaintop removal in headlines and slowed the approval of new mountaintop projects. That particular case was filed by 10 coalfield residents; the West Virginia Highlands Conservancy, an old-line conservation and environmental protection group; and Trial Lawyers for Public Justice, a national public interest law firm. U.S. District Judge Charles Haden II ruled that mountaintop removal projects violate the Federal Clean Water Act when their valley fills bury perennial or intermittent streams. The decision, handed down in October 1999, created a political uproar and produced grave warnings that the West Virginia coal industry would be crippled.

The 4th U.S. Circuit Court of Appeals subsequently overturned the case on the grounds that Haden had acted beyond his jurisdiction. Specifically, said the court, the Constitution's 11th Amendment did not allow the West Virginia citizens to use the federal court to force the state Department of Environmental Protection to

Soon after the Kellys moved into the new house, blasting started on a ridge behind them. Thick clouds of dust boiled into the hollow, covering their windows, settling on the porch, regularly making it necessary to wash the whole place down with a hose.

enforce state laws. In October, the plaintiffs appealed to the U.S. Supreme Court, though the substance of Haden's controversial ruling was no longer at issue.

The environmentalists' battle against mountaintop removal also goes on in Kentucky. Kentuckians for the Commonwealth (KFTC) is a statewide social justice organization that played a leading role in blocking strip mining near Kentucky's highest peak on Harlan County's Black Mountain in 2000. It has more recently sued the U.S. Army Corps of Engineers over its approval of a huge mountaintop mine expansion in Martin County. The London, Ky.-based KFTC claims the permit was illegally issued under a national program for projects with insignificant environmental impact rather than under more stringent local permitting requirements. The planned expansion would create valley fills covering about six miles of streams with headwaters in numerous hollows.

Rudy Abramson

Willard and Evelyn Kelly play with their dogs in front of their dream house in what was once a quiet and peaceful valley. Mountaintop removal has forced them to consider selling what they thought would be their last home.

Echoing warnings issued by West Virginia officials after the Haden decision, the president of the Lexington-based Kentucky Coal Association, the state's largest trade association, warned that the suit could "literally shut down the coal mining industry," not only in Eastern Kentucky, but beyond.

Meanwhile, the Kentucky Resources Council (KRC), another environmental advocacy group with central offices in Frankfort, has notified the Corps it plans to sue if the agency grants a pending application for a project near the North Fork of the Kentucky River.

From Mountaintops to Valley Fills

After development of massive new earth-moving equipment, mountaintop removal was introduced to the Appalachians three decades ago and spread across huge acreage in Eastern Kentucky and Southern West Virginia and into Southwest Virginia before serious controversy erupted. Between 1978 and 1998, the state of Kentucky issued 367 permits for mountaintop removal mines, and more than 130 — perhaps many more — were approved in Southern West Virginia. By the late 1990s, West Virginia's Department of Environmental Protection was authorizing more projects in a single year than it had during the entire decade of the 1970s or the 1980s. Some of them had grown to more than 2,000 acres, and when juxtaposed, they stretched for miles and altered the landscape, with the ultimate consequences unknown. By 2001, an estimated 300,000 acres of West Virginia forests have been clear-cut, and, by some accounts, valley fills of rock and dirt dumped off mountainsides have buried a thousand miles of West Virginia streams.

Except in Tennessee, the majority of Appalachian coal still comes from underground mines, where mechanization has been as rapid as it has been on the surface. But half a century after the beginning of serious surface mining in the mountains, the outsized earth-moving machines employed in coal basins of the West have replaced contour mines with mountaintop removal in Southern West Virginia, Appalachia's richest coalfields.

The impact on the landscape went largely unnoticed until *U.S. News & World Report* magazine published a devastating spread with photographs of scalped mountains. The accompanying article focused on St. Louis-based Arch Coal, Inc.'s depopulation of communities near its Dal-Tex Mine in Logan County and suggested that mountaintop mines had contributed to destructive flooding.

Made famous by the article and subsequent litigation, the Dal-Tex Mine had opened in the early 1990s, and it closed in 2000 at the height of the controversy. Spread across 6,000 acres of Logan County, the mine had produced as much as 4.4 million tons of coal a year for the country's second largest coal producer. On it operated power shovels that scooped up 50 cubic yards of rock or dirt or coal in a single stroke and a 20-story excavating machine, called a dragline, that took bites the size of a small house, rotated, and dumped them at a distance of nearly two football fields. Trucks raced about with loads of 90 tons each.

Moving Down the Hollow

With the Dal-Tex seams nearly exhausted, Arch proposed to move the equipment down through a hollow near the community of Blair, across West Virginia Highway 17, and onto another ridge. There the company planned a new 3,000-acre mine called Spruce, where it intended to remove 10 seams of coal worth $2 billion. Over 15 years, operations would cut the mountain down by hundreds of feet and bury four miles of streams beneath valley fills rising as high as 600 feet.

But Spruce Mine became the focal point of the lawsuit that led to Judge Haden's ruling restricting valley fills. In the long hollow between Dal-Tex and the planned Spruce Mine, residents of the communities of Blair and Sharples had long endured dust, blasting, and the constant night-and-day roaring of machinery.

By 2001, an estimated 300,000 acres of West Virginia forests have been clear-cut, and, by some accounts, valley fills of rock and dirt dumped off mountainsides have buried a thousand miles of West Virginia streams.

The company parried a barrage of complaints. Looking toward years of work ahead on Spruce Mine, Arch set out to evacuate the hollow. The company bought out businesses and scores of homeowners. Others filed lawsuits, negotiated financial settlements, and left. Many of the vacated houses burned to the ground. Company employees moved into the others.

Among the stubborn holdouts were Carlos Gore, who stayed in his house precariously close to Dal-Tex, and James Weekley, who remained in Pigeonroost Hollow, where his family had been for generations and where Arch proposed to place one of the major valley fills from the Spruce Mine. Both became individual plaintiffs in the landmark lawsuit led by the Highlands Conservancy and Trial Lawyers for Public Justice. Indeed the origin of the suit can be traced to the moment when Weekley walked into the Charleston office of environmental lawyer Joseph M. Lovett with a copy of the *U.S. News & World Report* article.

Now, two years after Haden's decision, Arch's dragline Big John sits idle on the edge of the otherwise vacant Dal-Tex Mine while the company again pursues state and federal permits that would allow it to open the new Spruce Mine. Its new applications were filed within days of the appellate court's reversal of Haden.

Laura Forman, Ohio Valley Environmental Coalition

Blair, W.Va., resident Carlos Gore looks over what used to be a mountain behind his home in Logan County. Uniform sculpted mounds covering unstable materials from valley fill have replaced rugged forested mountains that once surrounded the deep valleys.

Outrage

Environmental activists grope for words to express their indignation over mountaintop removal. Brent Blackwelder, president of the Washington, D.C.-based organization, Friends of the Earth, calls it "the most flagrant form of environmental abuse in the country." Ken Hechler—a former congressman, former West Virginia Secretary of State, and implacable foe of strip mining—likens reclamation of mined sites to "putting lipstick on a corpse."

At the root of the conflict between environmentalists and the industry, says Tom Fitzgerald, director of the KRC, "is an arrogance that has afflicted this industry since the sixties. This is an industry that has never recognized the legitimacy of the 1977 SMCRA. Other industries carp about controls, but they recognize the regulation is a part of the cost of doing business. The coal industry refuses to accept the legitimacy of anybody limiting or curtailing them or enjoying any rights that stand in the way of coal's interests," says Fitzgerald.

Anticipating backlash, the coal industry at first characterized mountaintop removal as a public service, predicting that plateaus left behind would become sites for industrial developments, housing projects, and golf courses. One ad played off of *Field of Dreams,* a popular movie in which an Iowa cornfield is transformed into a baseball diamond graced by immortals of the game.

But the vision has not panned out.

The SMCRA requires that mined sites be restored to their approximate original contour. Given the daunting task of restoring the contour of a mountaintop site, the law allows operators to be excused from the requirement, provided that they protect the site's value by putting it in condition for commercial, industrial, agricultural or recreational use.

But many operators have merely hydroseeded thousands of acres of naked plateaus and labeled them wildlife habitat. Although not federally recognized, state regulators for years accepted these grassy plateaus as acceptable post-mine land use. Experts estimate that it will take 150 to 200 years for forests to be re-established.

But reclamation is demonstrably possible. Placing removed overburden back in the area from whence it came can reduce the size of valley fills and restore a rough approximation of the original contour. Forestry experts at Virginia Tech and elsewhere have demonstrated promising strategies for developing commercial forests on mountaintop removal sites (see Zipper, "Back to the Coal Mines?," p. 15).

Arch Coal's huge Hobet 21 Mine located near Madison, W.Va., has been made a showpiece, an agreeable new landscape of restored hillsides and wetlands populated by a variety of wildlife. The site has won reclamation awards and recognition from wildlife organizations, and it provided the industries with a public relations coup when Secretary of the Interior Bruce Babbitt visited in August 1996 and proclaimed it proof that mining and environmental values can co-exist. "In some ways," Babbitt said during his visit, "it is a better landscape than it was before. It is a more diverse landscape—a savanna of forests coming back, of fields, of open spaces."

A Necessity?

Still, it has attracted no industrial complex or real estate development. Indeed, critics point to Hobet 21 to debunk the very notion that mining's manufactured flatlands are needed. "The idea that land value is enhanced by mountaintop removal is fiction," says John McFerrin, a former president of the West Virginia Highlands Conservancy. "Just look at Hobet 21. It is just out of Charleston, the land has a rail spur on it, and it is within 100 yards of a four-lane highway. If any place in the world is suitable for an industrial site, that should be it."

Environmental activists grope for words to express their indignation over mountaintop removal. Ken Hechler likens reclamation of mined sites to "putting lipstick on a corpse."

A few reduced mountaintops have indeed been put to use. In West Virginia, there is a little-used airport on a former mountaintop in Logan County, a shopping mall in Logan County, a prison in Fayette County, and a school in McDowell County. Outside Prestonsburg, Ky., a spectacular 18-hole golf course has been completed, and upscale housing and industrial development are promised, following a decade of debate and more than $20 million in state economic development support.

Having seen its development predictions go largely unfulfilled, the industry now focuses on an argument that mountaintop removal is a necessity, that it must be done in order for Appalachia to compete with Western mines, provide jobs, and assure the survival of the coal industry in the region. In the Powder River Basin of Wyoming, coal can be mined for $3.50 a ton, compared to more than $20 per ton in Appalachia, and consequently Western coal is now burned in utility boilers in Georgia, Alabama, and other places where Appalachian coal held a monopoly until recent years.

Environmentalists scoff at the suggestion that mountaintop mines produce jobs crucial to the economy. The process, they say, does the reverse. Employment in the mines of Central Appalachia has plummeted. Sixty years ago, 130,000 miners dug 126 million tons of coal per year in West Virginia. In 1979, it took 58,000 miners to produce 112 million tons. At the turn of the century, the state's mining work force had declined to a little more than 15,000, and production had increased to 170 million tons. In producing 52 million tons of coal, mountaintop mines employed about 2,000 workers.

Machines, such as Arch's Big John, have walked on stage as the last characters in the drama of coal's transformation from a labor-intensive to a capital-intensive industry, replacing the mythical "steel driving man."

Waiting and Hoping

In December 2000, Willard and Evelyn Kelly offered their dream house for sale. Two or three people called, but clearly they expected a bargain. Before the year ended, the sign was taken down. "You put your house up for sale around a strip job, and you don't get many offers," says Evelyn Kelly. "When we told them we had to have what we've got in it, they weren't interested." Nor have Mingo Logan Coal Company or Arch, its corporate parent, expressed any interest.

This does not mean that Arch will never offer to take the Kellys' dream house off their hands. After all, remember that it is only 15 miles across the mountains to Blair and Sharples where the company decided to evacuate communities in anticipation of the opening of the Spruce Mine.

So Willard and Evelyn wait and hope.

If the coal company makes them a reasonable offer, they will sadly leave their dream house in the hollow. Their only alternative is to hold out through more dust and blasting and wait for the machines to take all the nearby coal and leave Cow Creek peaceable again. N&T

Rudy Abramson is researching coal industry issues under a grant from the Alicia Patterson Foundation. He is also co-editor of the Encyclopedia of Appalachia, *a project of the Center for Appalachian Studies and Services at East Tennessee State University.*

Making a Living

Out here where I make my living
on a farm I can't let die,
work days last as long as I do

then while I sleep my shadow work
goes on in dreams of you
juggling to set a roof beam, but

whichever end you aren't gripping
slips, and no one to help you hold.

Some nights my mind's dream worker
can't find food to feed us,
or there's food but I can't reach it.

Last night while we were both asleep
I searched for paying work,
but they told me, "Go home and finish

your jobs that need doing there." How?
Work done for love is never done.

Each evening I stow my tools
in the shed like hound pups
hot and spent; time for them to rest

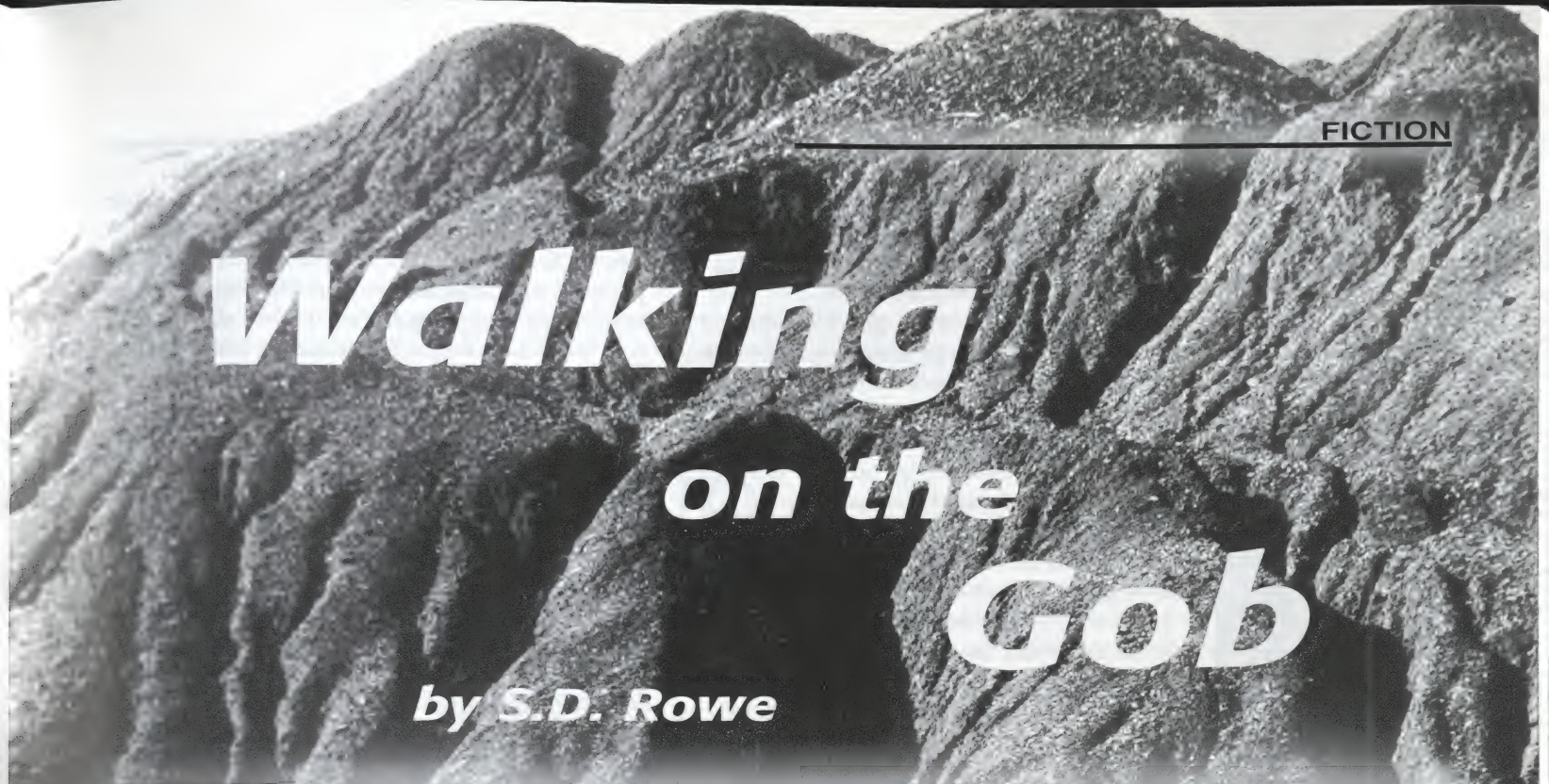
as I need rest. I wish I could believe
each day winds down to done,
each night brings perfect sleep,

but I've made the bed I lie in
with extra covers,
knowing nights can start hot, end cold,

and that work carried over to dreams
is the darker side of our living.

—Dana Wildsmith

Dana Wildsmith teaches English literacy classes to Hispanics. She is the author of one collection of poems and two chapbooks and was recently the winner of the Byron Herbert Reece International Award of the Georgia Poetry Society, for which Thomas Lux was the final judge.



Walking on the Gob

by S.D. Rowe

Our mother had repeatedly warned my brothers and me about the dangers of the Gob. Everyone in town knew the slack pile had enough coal left in it to spontaneously smolder like a banked furnace, and the rotten egg smell and eye-stinging smoke that wisped up occasionally from the Gob Pile bore mute testimony to the glowering red chambers that lay somewhere beneath that surface. Our mother told tales of the unfortunates who had broken through a brittle crust of ash and fallen to their deaths in the white-hot pockets that pulsed within the pile. No one spoke the names of the disappeared, but everybody agreed that men had vanished into the Gob.

The coal waste was known by various names in our small town that drew its life and reason from coal. The mine refuse, or tailings, were called boney. When the coal was washed and screened, a wet, sulfurous mud the men called gob was dumped out on the pile with the tailings. Wherever the dumped material came from, it created the most significant man-made landmark in our little town. Towering what seemed to us like hundreds of feet above the gray clapboard company houses, the Gob Pile was a shifting, changing mountain, always growing, always spreading its loose base wider and wider. And it was malevolently attractive to every young boy in the camp by virtue of its inhospitality. Not a plant grew on its stony, gray slopes, not because it was eternally in the process of being created, but because the dry shale and sour smoke associated with the coal poisoned every vestige of vegetation. The Gob Pile was like the mysterious landscape of a raw, young planet, hot and dry in the summer, scoured by freezing wind in the winter, and eternally leaking a vaporous stink that hinted at incipient volcanism beneath its drab surface.

It was summer vacation when my brothers and I decided the time had come for another exploration of the Gob. The days had grown dependably warm. The rhythmic chug of the mine pumps thumped hypnotically at the edge of town, and coal hopper cars squealed and boomed as they were shoved by a blackened locomotive into the tipple to be filled. The days were hot and clear and dry, perfect for an expedition onto the lunar landscape of the Gob.

"You know Momma'll whip us if she knows we've been up on the Gob," said Jimmy. He'd been up there only once with us last summer when he was six, scared to put one foot in front of the other the whole time for fear his next step would be his last. His idea was that we should spend the day on the creek catching chubs and crawfish.

"Yeah, and she'll know from our feet. She always does," Scotty chimed in.

"Shut up, spider-boy," I sneered. "She'll only know from your mouth, not your feet. You always have to tell everything we do."

"Yeah, but with your lips," was Scotty's lame reply. I knew he would go because he didn't argue, and he was just as curious as I was about what we might find up there.

The day dawned perfect for walking on the Gob. About 10 o'clock, a lazy warmth set in that hinted at the hard white sun that would follow. We gathered under the back porch where our father kept his wheelbarrow and reel lawn mower. They were propped against the cut stone of the house foundation, picketed by the weathered gray handles of rakes and shovels. "We'll go like we're going to the creek, then cut up behind the Gob down by the Big Sycamore," I said. "Scotty, you get the bucket for whatever we find."

Our mother told tales of the unfortunates who had broken through a brittle crust of ash and fallen to their deaths in the white-hot pockets that pulsed within the Gob.

Archives of Appalachia, ETSU
Jeanne M. Rasmussen Collection

"What do you think we're gonna find up there, anyways?" asked Scotty. "There's never nothing up there but shale and red dog, and I'm not carrying a bucket to bring any of that junk back."

I glared at him, but he was right. We had never found anything worth bringing back from the Gob Pile except broken shale marked with small fern fossils, red dog, or some knobby, round rocks that nobody seemed to know what to do with. The stone we called "red dog" was a pale pink rock from deep within the pile. Anything of interest in the red dog had long since been scorched away by the furnace interior of the Gob. "Yeah, well, if we do find something, I'm gonna make you carry it by yourself the whole way back without the bucket," but I knew the threat was empty since we had never brought anything home from the Gob.

Like a line of hunters setting out on safari, we trailed down the street paved with red dog. I, being the oldest, took the lead and slid down the slick clay bank of the small creek that marked the edge of town and the rise of a steep, wooded hill on the other side of the creek. We followed a path made smooth and wide from many passages along the left side of the creek. We had been this way many times before. It was our jumping-off place when we wandered into the hills around town. Just where the frame of an old truck lay half in the creek and half beside a pied-bark sycamore tree that leaned out over the creekbed, we angled over to the backside of the Gob Pile. We knew we were far enough around the curve of the creek that Momma couldn't see where we were going, and we pushed our way through interlaced briar canes to reach the barren slide of gray shale that marked the boundary between the living earth and the sterile stuff that was gob.

The pile was higher than the last time we had trekked onto it, and our old path had been obliterated by new truckloads tipped over the side at the top of the pile. "We'll go up the side," I said to my two brothers as I skipped a hand-sized flat piece of shale up the pile. It clacked onto the bank causing a small, halfhearted slide that soon petered out.

"You first," said Scotty. "You make the road for us."

I started diagonally up the loose pile, which seemed so steep that I might reach out before my face and touch it. I dug my feet into the Gob until I stopped sliding downward to make a sort of flattened path Scotty and Jim could walk on. Fine shale powder surged up over the tops of my shoes with each digging step. My feet were going to be a sure giveaway when bath time came, but I kept churning up, climbing like an alpinist across a steep snowfield, except that my snow was rotten shale and heat radiated off of it like a paved asphalt street.

Scotty and Jimmy followed until we scrambled up over the edge onto the flat plain the trucks had pounded solid for a dumping tip. The shale was pulverized and dusty here, but the trucks had solidified it so that it held weight. We looked over the side at our mountain path and saw that we were far above the top of the sycamore and nearly even with the ridgetop that snaked alongside the creek.

"We've got to get moving," Scotty urged. We could heard the straining engine of the next truck as it labored up the road, which was out of sight on the other side of the pile. "If they catch us up here, they'll chase us off and tell Momma that we're up here." He was already angling over to an older section of the Gob where the trucks were no longer dumping. Jimmy and I followed as he slid over the edge of the pile. We lay down like Indians in a line so we could spy on the truck when it came up to the dump.

We pushed our way through the interlaced briar canes to reach the barren slide of gray shale that marked the boundary between the living earth and the sterile stuff that was gob.

The truck surged up and around the final curve; gray dust squirted away from the front tires and boiled into a dense cloud behind the bed as the truck wallowed heavily over swells in the packed dirt road. We could see it was Evan Walbeck behind the wheel. He bounced so hard with the truck that it seemed he would hit his head on the cab roof each time the truck went over a high spot on the road. He had been driving Gob trucks as long as any of us knew, and he deftly swung it around to dump his load over the side. He didn't look out the open driver's side window but braked expertly just before the rear wheels began to sink at the soft edge. His load rumbled onto and out over the edge, and the bed lowered with a bang before the truck geared off and around the curve for another in the endless series of loads that built up the pile. He had not seen us watching.

"Where'll we go now?" asked Jimmy. He was clearly nervous at the prospect of being caught on the Gob and what Momma would do to us when she found out.

"Let's go down to the Badlands" was Scotty's suggestion. He pointed to an older section where we

had never ventured before. We called it the Badlands because the sharp yellow smell of sulfur was clearly stronger there, and there were places in the Badlands where the red dog had been excavated and hauled away to make roads like the one that ran in front of our house. The exposed red dog banks were contorted into twisted shoals like solidified lava, and no living thing grew on this rock which was born deep within the smoldering Gob.

"I don't want to go down there," Jimmy whined. "That's where Larry Rager fell through the Gob and burned up."

"Larry Rager didn't burn up in the Gob," I answered. "He was crazy, and his people sent him off to the nut house without saying anything to anybody." By this time, without a word of agreement or argument, we were all three sliding down the bank to the lifeless place where the Gob was hotter than the summer sun made it, and little wisps of smoke seemed to filter up from the surface of the ground. We were going to see for ourselves what dark secrets the Badlands held.

The Badlands were different than the loose, new Gob we had slipped and slid over in all of our previous explorations. Where backhoes had gouged at it for road fill, the loose shale and dry, powdery soil had fused together into contorted formations that were scorched into a pink brick color. The red dog banks were cool enough to touch, but it was evident they had been very hot, and not too long ago.

"Maybe Momma's right. Maybe there are burning caves under the Gob," said Jimmy as he looked closely at the baked red rock. "I say we go back now," he said firmly.

"Maybe babies like you do, but we're going up on the flats to see what's there," I said. I was climbing up the crumbling red dog face while looking back to see if the boys were following as I spoke. The undisturbed Badlands rose slightly before me, ending about two hundred yards away against the forested side of the ridge. "I'm going to walk all the way across this plain over to the woods," I shouted from the top of the bank. Scotty and Jimmy were coming up the bank behind me, but neither one looked as if he wanted to continue on once they got to the top.

All three of us stood momentarily looking out across the Badlands. Unlike the loose shale of the new dump, this surface looked brittle and sharp. It reminded me of the furnace clinkers I had seen my father hook out of the coal furnace with a long iron poker. The surface glittered in places as though it were made of glass.

"It's like the crust over the burning caves," said Jimmy quietly. "I'm not going out there."

"Oh, yeah, and what about you, spider-boy?" I said over my shoulder to Scotty as I started out across the sharp cinder surface of the Gob. "Are you going to stay back here with little baby Jimmy, or are you coming with me?"

Scotty hesitated for a moment, but he was more afraid of being called a baby at that moment than he was of burning chambers. He started out after me but slid his feet tentatively ahead of him, almost like he was skiing. He was testing his weight with each step before he would commit to sliding out another step.

We had gone nearly all the way across the flats when we stopped to look back at Jimmy. He had not come out on the Gob, and he was alternately looking back the way we had come and then at us. Scotty and I began to taunt him: "Little baby Jimmy won't walk the Gob 'cause he doesn't want to wet his diaper." We chanted over and over, but Jimmy stood there without committing himself one way or the other. Scotty began to jump up and down in time with our chorus until suddenly I reached over and held him down by the shoulder. I had gotten the odd impression that the ground had given slightly, sort of like the feeling I'd had the previous winter on new ice just before it had cracked under my weight. "Don't do that, Scotty. Let's move," I urged.

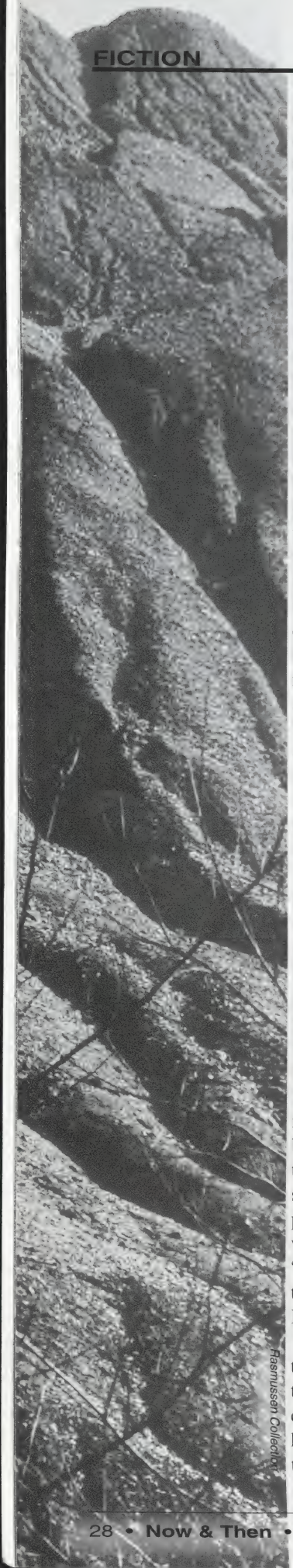
We began to run, all caution given over, towards the margin of the pile. I could feel the Gob giving beneath my feet each time my heels struck the brittle surface. Scotty, too, must have felt the surface sag since there was an urgency in the way he ran as well. The vapor wafting up seemed to become thicker, more redolent of rotten eggs as we scrambled wildly for the edge. Both of us were out of breath, panting, when we reached the margin of the Gob, and we leaped over into the safety of leaf mold and underbrush on the wooded hillside that edged the pile. We looked back, breathlessly, expecting to see slabs of Gob being swallowed into the smoky hell beneath, but the Gob had not fractured behind us, even though it seemed to us that smoke wafted up from every footprint we had left behind.

"What's wrong? Why did you run?" we heard Jimmy shout. "Wait up. I'm coming too." He stepped halfheartedly out onto the Gob, his dread evident.

"No, no. Go back," Scotty and I yelled, our hands cupped around our mouths to direct our warning to our brother. "Don't walk out on the Gob. It's going to break!"

Jimmy had come nearly to the place where Scotty and I had jumped and mocked him. "Go back. Don't come after us!" We were shouting with desperation now, but Jimmy continued onto the section of Gob we had felt sinking. He was walking slowly, and we

Rasmussen Collection



could see that his feet were sinking deeper and deeper the farther he ventured onto the rotten section. "Stop, stop," we were nearly sobbing as Jimmy came nearer to where we were running desperately along the edges of the pile. Neither of us dared to go back out onto the Gob to drag him to safety.

Then Jimmy stopped. He looked down at his feet and began to lean forward. As he leaned, he foreshortened so that less of him appeared to be above the surface. We knew he was slipping beneath the Gob and there was nothing we could do about it. "Jimmy, get out of there now. Run!" By now, I was nearly hoarse with shouting.

Almost in slow motion, it seemed, he straightened up and looked directly at me. He was only about fifteen feet away, but I could see his eyes clearly. They appeared large and brown and puzzled. My heart was racing with frenzy, and I stretched out one foot onto the Gob, one hand extended as far as I could to my brother, the other firmly grasping the limb of a small tree. But I fancied that I could feel heat searing up through the sole of my sneaker, edged back from the blazing maw that seemed about to crack open in front of us at any moment.

"What? What did you say?" Jimmy seemed oblivious to the subsidence that had panicked Scotty and me off of the Gob. He was more interested in something that he had picked up, and he was looking at his hands rather than at us or at the ominous slumping of the surface.

Jimmy was still paying no attention to us or to the Gob as he walked almost casually the rest of the way to where Scotty and I had been running back and forth. He was so absorbed with what he had found that he had taken no notice of our shouting or what had occasioned it. He extended his hand towards us as he stepped into the cool shade of the woods. "Look what I found…" he said disarmingly. "It's Larry Rager's skull."

Filling his cupped hand was one of the smooth, round stones that we had found before on the Gob, but this one was about the size of a baseball. It was the reddish-black tint of all such stones, and it did suggest general shape of a human skull. Beneath a protruding ridge near the top of the stone, there were eerie, darkened indentations like eye sockets. "It's shrunk from being cooked down underneath the Gob," Jimmy announced with conviction. "And I'm going to keep it since I found it."

I looked from the stone to Jimmy's sincere, upturned face and back to the gob surface glittering in the afternoon sun. My heart was still racing so that I could feel each beat thump at my temples and behind my ribs. For the first time in my life, I felt a tangible wave of affection for my baby brother, but I simply reached out to smack him on the top of his head with the flat of my hand. "You're just a crazy little baby," I said. "Larry Rager's in the nut house, and skulls don't shrink into stone like that."

"Let me see," demanded Scotty, holding out his hand. "It sure looks like a skull to me," he said after turning it over and over, testing its heft, examining it for fragments of charred flesh.

We argued about whether the Gobstone was Larry Rager's skull all the way back to the house, with Jimmy stubbornly holding to the opinion that he had a true Gob-shrunken head in his possession. Neither Scotty nor I talked about the slumping of the crust we had sensed, nor did we bring up the prospect of the chambers of death that lurked beneath the surface of the Gob.

I had gotten the odd impression that the ground had given slightly, sort of like the feeling I'd had the previous winter on new ice just before it had cracked under my weight.

That evening, we lined up in the narrow hall outside the bathroom to wash the day off of us before our mother would let us into our beds and onto her clean sheets. We stood in line in descending order of age, our white legs and trunks in stark contrast with the sunbrown skin of our arms and necks. Our feet were uniformly gray up to above the ankles with greasy black shale dust. "You didn't dump out your shoes, you little baby," I whispered to my brother Jimmy.

"Did so," he answered defiantly, but I could already see our mother coming towards us in the hall. She was holding up one of Jimmy's socks by its elastic ribs. The toe hung heavy with gob dirt as Mother grimly upended the sock to empty its load onto the hall floor in front of us.

"Were you boys up on the Gob today?" She aimed her question right at me, and I felt self-conscious standing there clad only in my white jockey shorts, even though she was my mother.

"Well," I started, but I do not remember the story that I spun, the story she did not believe even before I began to tell it. N&T

S.D. Rowe has lived in and written about Appalachia most of his life. He lives in Princeton, W.Va., and is employed by the J. Frank Marsh Library at Concord College in Athens, W.Va.

The Landscape of Southern Ohio's Hanging Rock Region

From Ravaged to Recovered

by Timothy G. Anderson

Southern Ohio's 19th-century iron manufacturing industry, one of Appalachia's earliest experiences with boom-and-bust cycles, offers lessons and hope to those living in the region today.

Ask the average person to name factors that contributed to Appalachia's distinctive character, and you are likely to hear about how the region's economic reliance on natural resource exploitation and extractive industries helped mold its history and personality. But when asked to name the important "extractive industries" that have contributed to the shaping of Appalachia, few would include one of the most important: iron manufacturing.

Yet for 130 years, between 1750 and 1880, the manufacture of iron and iron products in charcoal- and coal-fired furnaces and forges in particular locales in Appalachia as well as along the East Coast accounted for a significant portion of America's early industrial output. In the process, the presence of the iron industry appreciably, perhaps irrevocably, modified and altered the natural environment and cultural landscapes of such locales. Such was the scale of alteration that environmental historian Donald Edward Davis in his recent book, *Where There Are Mountains: An Environmental History of the Southern Appalachians,* maintains that the production of charcoal iron was responsible for more environmental destruction than any other industrial activity in the antebellum Southern Appalachians.

Recently those of us conducting research in Ohio University's geography department have used high-tech satellite imagery to study the long-term environmental consequences of the industry. Our preliminary findings suggest a less dire picture of those consequences than we'd expected, due in large part to serendipitous conservation policies on the part of state park systems.

An Industry Moves West

An ancient practice, the manufacture of iron and iron products was certainly a part of life in early Colonial America. Producers tended to locate furnaces where all the primary raw materials required for the production of crude iron, called pig iron, could be found in close proximity to one another. They needed ore in the form of exposed or easily accessible deposits of hematite or magnetite, ample stands of timber to furnish wood for conversion to charcoal fuel, and water for cooling, for transportation of the finished product, and for power to drive bellows.

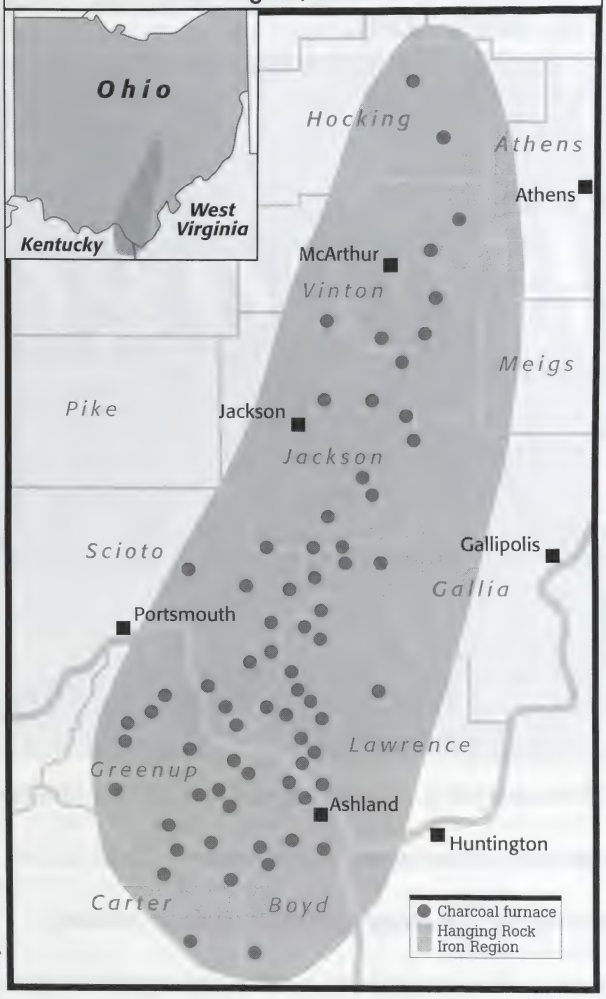
It is known that pig iron was being manufactured as early as 1645 in Massachusetts. On the eve of the Revolution, the Colonies produced 30,000 tons annually. By 1810, the figure had expanded to 54,000 tons. By the beginning of the 19th century, iron furnaces and forges could be found in nearly every Atlantic Coast state, with especially heavy concentrations in rural areas of Northern New Jersey, Southern New York, Western Connecticut and Massachusetts as well as in Southern New Jersey's pine barrens.

Until the 19th century, the U.S. iron industry was characterized by many rather small-scale furnaces producing between

300 and 800 tons of iron per year, primarily for local consumption. But by the 1850s, an expanding commercial agricultural economy in the Midwest, characterized by the use of mechanized machinery such as reapers, threshing machines, and larger plows and implements, led to vastly increased demands for iron. Increasing demand also stemmed from the exponential growth of the railroad industry, which required iron for its locomotives, rails, and tie spikes, and, later, from the Civil War, which was fought with iron guns, cannons, and cannon balls. By the 1870s such demand appears to have reached its zenith. For example, in just two years — 1873 and 1874 — statistics compiled by the Ohio Secretary of State show that over 85,000 tons of railroad iron and 61,000 reaping machines were produced in that state alone.

In response to increased demand, the U.S. iron industry by the middle of the 19th century expanded in scale and scope. The primary centers of production moved west to Ohio, Kentucky, and other parts of Appalachia in order to take advantage of virgin stands of timber and newly discovered outcroppings of iron ore. By all accounts, one of the most important of these new centers of iron production was the Hanging Rock region of Southern Ohio and Northern Kentucky. Here, in a roughly 2,500-square-mile district on the western edge of the Allegheny Plateau extending from Hocking County, Ohio, to Kentucky's Carter and Boyd counties, all of the necessary natural resources for making iron were available: a large outcropping of ore, limestone, forests for conversion into charcoal, and numerous streams and rivers.

Charcoal Furnaces of the Hanging Rock Iron Region, circa 1859



Nancy Fischman

A Relatively Simple Process

While the manufacture of pig iron from these various natural resources may on the surface seem to be an extremely complicated process, in point of fact the technology employed in early iron production was relatively simple. The furnace stack itself consisted of a pyramid-shaped stone structure between 25 and 75 feet high, often built beside a cliff or at the bottom of a hill. From a hole in the narrow opening at the top, workers loaded the crucible inside the stack with alternating layers of iron ore, charcoal, and crushed limestone, which was used as a flux to facilitate the separation of the molten iron from impurities. The ironmasters who oversaw the production process could vary the proportion of each raw material ingredient, depending on the desired quality of the iron.

When the furnace was lit, the intense heat created by the burning charcoal, intensified further through blasts of air introduced into the crucible by bellows, melted the ore. Because the molten ore was heavier than the residue, called slag, it sank to the bottom of the furnace where it was collected and directed into small ditches dug into the ground, known as "pigs." There the ore cooled and solidified. After the ore was collected from the furnace crucible, workers removed the remaining slag from the furnace, after which the entire process was repeated. The pigs of iron were either shipped to rolling mills for further processing or reheated in forges and beaten into bars or rods that could be sold directly to customers.

A Relic Landscape

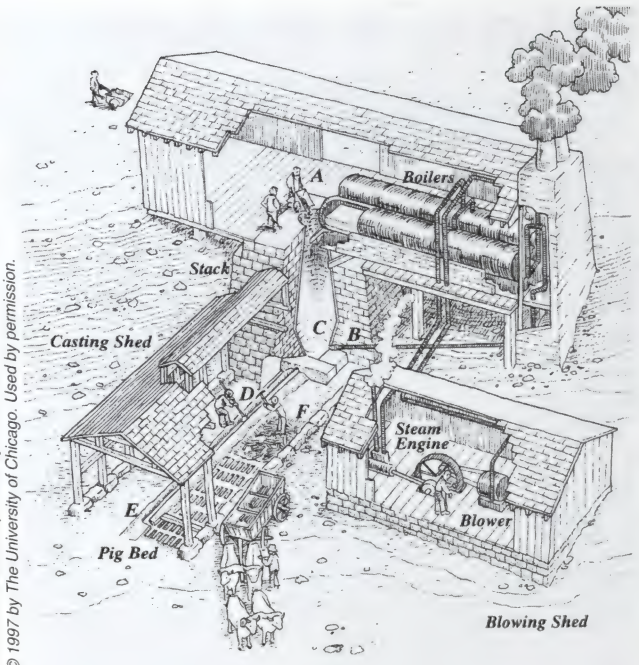
Although a consortium led by early industrialist Richard Deering built the first furnace in Ohio's Hanging Rock region in 1818, the real growth of the industry occurred in the 1840s and 1850s, when industrialists and manufacturers built railroads and canals to link the furnaces in the district to regional markets, especially rolling mills and forges in Cincinnati, Ironton, Ohio, and pre-Civil War Wheeling, then a part of Virginia. There, iron fabrication and manufacturing firms reworked and remanufactured the pig iron supplied by Hanging Rock furnaces into saleable goods. Because charcoal-fired furnaces produced high quality iron that was both malleable and strong, it was in high demand for use in the manufacture of farm implements, railroad car wheels, and machine castings. As such, charcoal iron production in Southern Ohio was an extremely important, although short-lived, business that was essential to the industrialization of the entire Ohio Valley.

> Environmental historian Donald Edward Davis maintains that the production of charcoal iron was responsible for more environmental destruction than any other industrial activity in the antebellum Southern Appalachians.

According to official statistics and documents collected by the office of the Ohio Secretary of State, producers erected at least 84

furnaces between 1818 and 1875 in the Hanging Rock region alone. Only roughly half of these were financially successful or in operation for any appreciable amount of time, however.

Initially, the average charcoal iron firm in the Hanging Rock region was organized as a small partnership among a handful of investors and was a rather small endeavor. Many of these operations were not financially successful and closed after only a few years' operation. After 1850, however, iron production and manufacturing came to be dominated by larger joint-stock companies in which dozens of investors purchased company stock. These operations, such as the Hecla Iron and Mining Company and the Etna Iron Works, were much larger undertakings and were financially viable, owning or leasing thousands of acres of forestland and employing hundreds of workers. Several of the largest and most successful companies were owned and operated by a group of Welsh immigrant industrialists in Jackson and Gallia counties. Historical geographer Anne Kelly Knowles has extensively written about these Welsh industrialists, most notably in her book-length study, *Calvinists Incorporated: Welsh Immigrants on Ohio's Industrial Frontier.*



From Calvinists Incorporated by Anne Kelly Knowles, © 1997 by The University of Chicago. Used by permission.

In a typical charcoal iron furnace operation raw materials were dumped into the stack mouth (A) with pressurized air blasted into the stack (B) by the blowing engine to aid combustion. The molten iron collected at the bottom of the crucible (C) and was "tapped" into a channel (D), called the "sow." There it was directed into side channels (E) that flowed into rows of molds to form "pigs." Once the pigs cooled and hardened, they were broken from the molds and loaded onto wagons (F).

The heyday for the charcoal iron industry in the Hanging Rock region came during the middle decades of the 19th century. By the 1880s, it was in sharp decline as a result of dwindling supplies of raw materials such as ore and timber, and diminishing demand for Ohio's pig iron due primarily to competition from other producing areas, such as Minnesota's Mesabi Range. In this respect, the short-lived boom-and-bust nature of iron production in the Hanging Rock region mirrored other natural resource extraction operations throughout Appalachia.

Cultural Landscapes

Like coal production, iron furnace operations created distinctive cultural landscapes that reflected not only the character and inner workings of natural resource exploitation but also the unequal nature of relations between labor and management characteristic of such enterprises.

Each furnace company operation consisted of the furnace stack itself, surrounded by an array of various outbuildings — the charging house from where the raw materials were loaded into the stack; the casting shed in which the pigs of iron were sheltered and cooled; the blowing shed, which housed the steam engine that blasted air into the furnace crucible; barns to house mules and oxen; and the remaining outbuildings used to store equipment. Located in the immediate vicinity was a company town with all of the requisite necessities for the workers and the operation of the company: prefabricated homes for the workers, often with accompanying garden plots; a church; a schoolhouse; and a company store at which workers could exchange company scrip for everyday goods. In contrast to the modest wooden balloon-frame houses inhabited by the laborers, in plan and style each one like the next and arranged in neat rows, there was the large and imposing house of the ironmaster, often Georgian or Victorian in style, from which he managed the entire operation. All of this was surrounded by expanses of land — up to 3,000 acres in the case of the largest companies — from which came the wood, iron ore, and water necessary for iron production.

Thousands of Acres of Wood

Because charcoal iron production was so dependent upon large supplies of timber as a fuel source, the industry brought with it significant environmental alteration. Although most individual charcoal iron firms in the Hanging Rock region were rather small, locally owned enterprises, the combined effect of dozens of furnaces operating in the mid-19th century meant that during this era, furnace companies came to own or lease thousands and thousands of acres of timberland in South Central Ohio and Northern Kentucky.

By most historical accounts and according to those who have studied the industry, the production of charcoal for use in the furnaces devastated the region's hardwood forests, resulting in the clearing of vast amounts of land for other uses, such as farming and strip mining. Gangs of colliers felled trees in the forests owned or leased by the furnace company. If company employees made the charcoal, they would haul it directly to the furnace stockyard. If an outside individual supplied the charcoal, that person would produce the charcoal at another location and then haul it by wagon to the furnace to which it was being sold.

The short-lived boom-and-bust nature of iron production in the Hanging Rock region mirrored other natural resource extraction operations throughout Appalachia.

Laborers produced charcoal by stacking various lengths of

wood into a large mound, sometimes 50 feet in diameter and 12 feet high, called a meiler (see photo on p. 33). They then covered the meiler with green leaves and several inches of earth and set fire to it. The meiler burned in a controlled manner for about 20 days, during which time the wood was transformed through intense heat into charcoal.

The average charcoal iron furnace in the Hanging Rock region produced between 1,000 and 1,500 tons of pig iron per year, although some of the larger operations could produce up to 20 tons per day. In 1875, the combined output of all of the furnaces in the Ohio portion of the region was just under 185,000 tons.

Geographers can estimate the amount of wood needed to sustain such an output since they know how much timber it took to produce the required amount of charcoal fuel. According to historical geographer Michael Williams, a cord of wood measuring 8 feet by 4 feet by 4 feet produced an average of 30 bushels of charcoal, and a ton of pig iron required anywhere between 125 and 400 bushels, depending on the quality of the iron being made. It appears that 300 bushels was the average amount required in the mid-19th century. Based on these averages, one acre of woodland produced 30 cords of wood and yielded 900 bushels of charcoal. An acre of timber, therefore, would be needed to produce 3 tons of iron.

Timothy Anderson

Visitors can see this reconstructed furnace stack at Buckeye Furnace State Memorial in Jackson County.

This suggests that furnace companies razed approximately 333 acres of woodland in order to produce 1,000 tons of iron. This figure, however, is probably a very conservative estimate. Depending on the efficiency of the furnace, it could take as many as 1,500 acres to produce 1,000 tons of iron.

Using the most conservative estimate, then, each furnace in the Hanging Rock region consumed about 300 acres of woodland per year. Multiplying this by the 43 furnaces that were in continuous operation in the 19th century results in a conservative estimate of almost 13,000 acres of woodland each year over a period of a least 50 years during the industry's heyday.

Serendipitous Reclamation

It is not an overstatement to say that many of the region's inhabitants and most academics who study Appalachia have a rather pessimistic attitude when it comes to the history of extractive land use in the region and the prospects for a positive future.

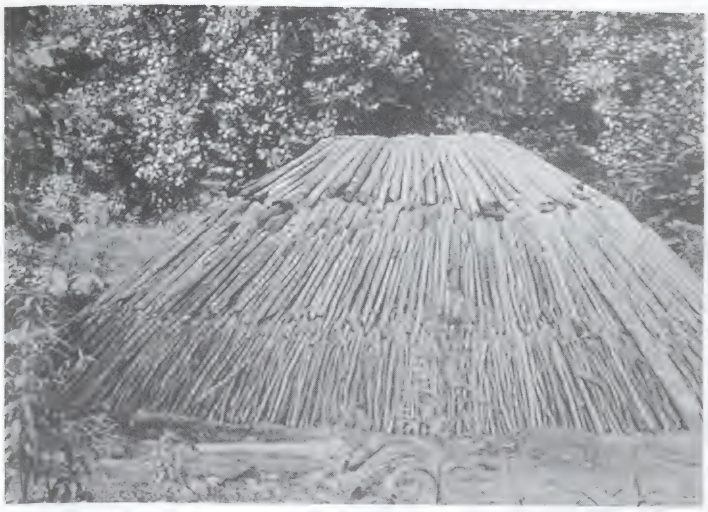
In Ohio University's geography department in Athens, we posed the question: What did such large-scale environmental alteration do to the hardwood forests of Southern Ohio? We believe that recent research may have provided one part of the answer, an answer that might well offer hope to the rest of Appalachia.

We have used Landsat satellite imagery to analyze the latent effects of iron production. Employing a sophisticated computer program called a Geographic Information System (GIS), we have been able to overlay on top of satellite imagery of Southern Ohio maps culled from historical maps and atlases of land once owned by furnace companies. By manipulating the wavelength bands of energy reflected and registered by the satellite, we can ascertain the relative productivity or vigor of vegetation, measured in terms of chlorophyll production. In the image shown in color on the back cover of this issue, red represents vigorous forest vegetation while blue represents a lack of productivity.

The results of this analysis were, at first, very surprising. The entire charcoal iron landscape is a relic landscape. In other words, it is a landscape that preserves evidence of human interaction with the environment even though the vestiges of that earlier landscape are hidden by the ecological recovery that has taken place since the 19th century. The degree of ecological recovery in this once ravaged landscape is impressive. It turns out that many of the areas owned and forested by furnace companies in the 19th century appear to be some of the more ecologically productive areas in Southern Ohio today, a district where land use is dominated by small-scale agriculture, lumbering, and gravel and crushed limestone production.

One of the most important findings of our research helps clear up this seeming paradox. In the early 20th century, the state of Ohio happened to acquire the majority of the former furnace company lands in Southern Ohio for its park system. The resulting restrictive land use — with a focus on conservation, preservation, and recreation — has had a profound influence on fostering the recovery of former furnace company lands. Of course, the recovery of large expanses of forestland in roughly 100 years, a relatively short period of time ecologically speaking, was probably serendipitous. No agency or agency policy specifically set out to effect the recovery of former charcoal iron areas. But in setting aside land for conservation and recreation that happened to include such areas, recovery indeed appears to have occurred. Without such management, the

Using the most conservative estimate, each furnace in the Hanging Rock region consumed about 300 acres of woodland per year.



Ohio Historical Society, Wilber Stout Collection

Laborers stacked logs in a circular mound called a meiler, such as this one from the Hanging Rock iron region (circa 1880), the first step in creating the controlled burn that would produce charcoal.

recovery might not have been so rapid or apparent.

Certainly, further research needs to be done and more in-depth questions asked. Was soil quality affected by the industry, and has it recovered as well? Is the forest that has returned to charcoal iron areas significantly different in terms of the kinds of trees and other plants from the original virgin hardwood forest? If so, how is it different, and what are the consequences? What kinds of pollution did the industry create, and how has that affected forest growth and recovery?

To be sure, it is not feasible, either economically or politically, to turn all areas formerly exploited for natural resource extraction into parklands. But still, we believe this research does suggest that the future for such areas need not necessarily be a bleak one. We believe that this research has wide-ranging implications not only for Southern Ohio, but also for the entire Appalachian region, a region that has had a long history of environmentally destructive natural resource exploitation.

> No agency or agency policy specifically set out to effect the recovery of former charcoal iron areas. But in setting aside land for conservation and recreation that happened to include such areas, recovery indeed appears to have occurred.

It suggests that degraded landscapes, when placed under protection, will over time display signs of ecological recovery. It offers the hope that, with proper care and management, a bright light might well shine at the end of the long tunnel of the history of Appalachia's extractive industry. N&T

Timothy G. Anderson is an assistant professor in the department of geography at Ohio University in Athens. His research focuses on the early settlement geography and history of Ohio and Appalachia and on the cultural landscapes and material culture of the region.

Waterfall

Ithaca, N.Y.

Radiance comes to my mother's face.
Up from Pennsylvania for a day trip,
she hasn't stopped praising the waterfalls,
thrilled by the slow white rivers
spreading in skeins down the black shale
face of mountains off the highway; thrilled
by the park's gutted grist mill, millshaft
broken in its pinions; the trees whose names
I teach her; the question of baldy cypress
I ask that cradles her south to a blacksnake
swamp two barefoot girls ran heedless,
the thought of which, just for a moment,
stills the little tune of her shivering.
We have driven to the top of this mountain
in a boatlength Chrysler Newport, a blue
rose tablecloth covering the good front seat.
I have buttoned my mother's coat at the collar
because her hands won't do right in this cold,
and walked her across the park's brittle lawn
toward the *really steep* falls I have promised her.
Today, she must keep both eyes on her feet,
for they balk like two bad pets in tow,
one pulling, the other refusing to come,
interrupting her story of her best
friend Jean, lost in the muffled, sudden sleet
of an old world war's first shrapnel.

"I've gone this far, I'm not going back!" she says.

Two hundred yards down a path around a bend
where I have gone ahead to count the steps,
my father has come to tell me what facts
I've avoided: It isn't asthma teased by cold,
but a heart the both of us imagine
grinding slowly down in disrepair
in that uneasy place where he and I
have learned to conserve old feuds, alone.
How many years will I relive the walk back
by the muddy, half-frozen creek to the place
where this tiny woman turns, alone and pleased?
She grins up into the frozen burst
of a single yellow poplar, whose
lovelier name, *tulip tree,* I have—
reversing the protocol of age and teaching
names—taught her. A hundred yards behind,
creek, woods, shale inexplicably let go
in a sudden resignation to gravity,
freefalling in beauty, just beyond our range.

Ruth Arnold Staudt 1929-1997

—David Staudt

David Staudt grew up in Eastern Pennsylvania's rural Blue Mountain region. His first collection, The Gifts and Thefts, *won the 2000 Backwater Press Prize (see review on p. 40). He has more poems forthcoming in* The Chattahoochee Review *and* Comstock Review. *He currently lives in Danville, Va.*

Keeping West Virginia *GREEN*

by Michael Barrick

West Virginia parks are a model of how states can act as stewards of natural resources, history, and culture.

It was October 1974. Six weeks earlier, at the age of 18, I had moved away from the security of Mom, Dad, and sisters in Bridgeport, W.Va. I was now 375 miles from home. I was homesick.

Working as an emergency medical technician at my new home in Charlotte, N.C., I barely had time to call home, let alone *get* home. We worked 24-hours on, 24-hours off. Finally, though, the first weekend of the year's most colorful month afforded me an opportunity to travel back home, as I was the beneficiary of a regularly scheduled five-day break.

I wasted no time. Within 30 minutes of my shift ending at 8 a.m., I was headed north to my native and beloved West Virginia on the 10-hour trip (there were very few interstate miles to be traveled then). While the reunion with my family was certainly a heartwarming event, something still didn't feel right. Instinctively, I insisted that we pack up a picnic lunch and start out on a two-hour trek to what was then (and still is) my favorite West Virginia state park: Blackwater Falls, just outside of Davis.

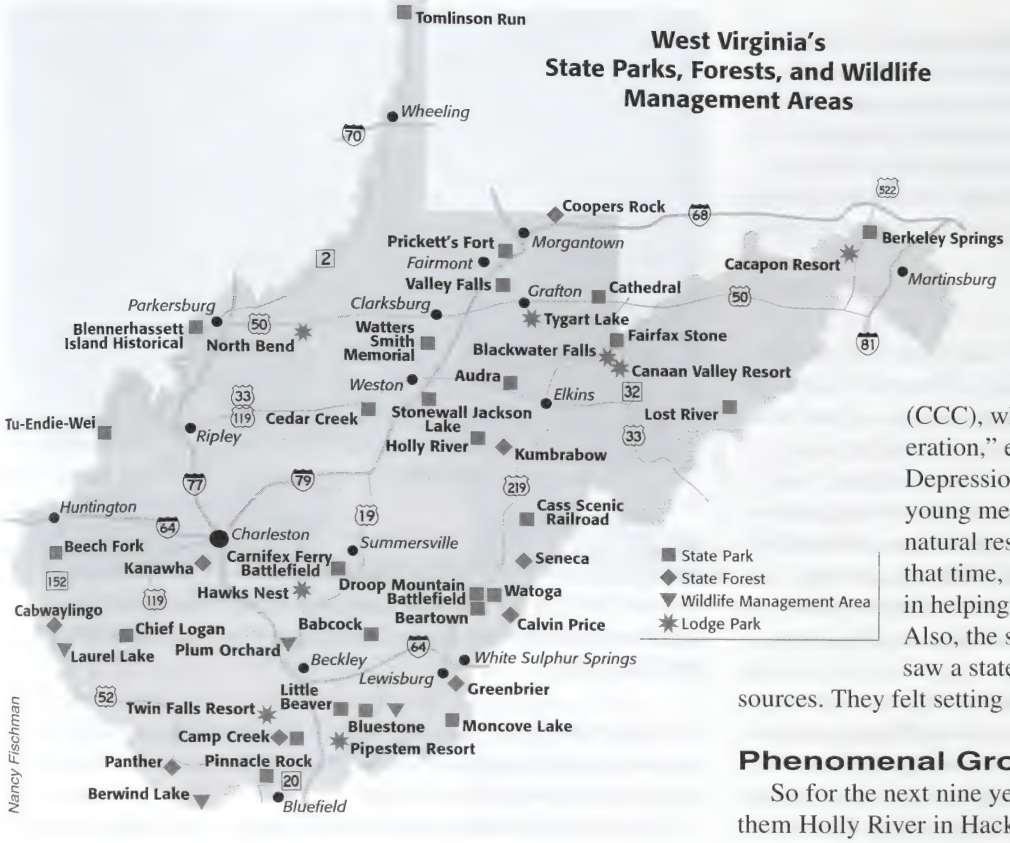
As much as I had missed the company of my family while living in the strange and large city, I had also missed the close contact with nature that had been as much of my upbringing as spaghetti dinners. And like those dinners, I had taken the West Virginia State Park system for granted.

Michael Barrick

Scenes such as this vista seen from the lodge at Pipestem State Park and Resort invite West Virginia residents and out-of-staters alike to explore the extensive and accessible system of state parks and forests.

As much as I had missed the company of my family while living in the strange and large city, I had also missed the close contact with nature that had been as much of my upbringing as spaghetti dinners.

And like those dinners, I had taken the West Virginia State Park system for granted — something I didn't realize until after I had moved. Venturing out from my new digs in Piedmont



North Carolina, I soon learned that West Virginia's pristine public parks — available to all but always big enough to afford solitude — were rare indeed. While my adopted home state — and all those in the Appalachians — offers unrivaled natural beauty and while Kentucky, Tennessee, and, to a lesser extent, Virginia have state parks that offer many recreational opportunities, only West Virginia has a system of public parks and forests so extensive and accessible.

Preservation by Design

It's not by accident. Preserving the state's natural beauty and making its trails, ridges, valleys, streams, and lakes available to tourists and residents alike is a core value of West Virginia state government — and has been for generations now. There is merit, the state's leaders determined, in preserving not only natural resources but also landmarks of cultural and historical significance.

Beginning in the early 1930s, the system has been incrementally developed into an 80,000-acre collection of 47 natural and historic parks that include lodges, resorts, cabins, camping, trails, forests, lakes, and streams. From the entire town of Cass along the Greenbrier River — which sports old logging mill houses converted to cabins and a bona fide steam engine train that takes visitors to the state's second highest peak — to the rugged rocks of Coopers Rock State Forest in Bruceton Mills, W.Va., near the Pennsylvania border, the park system offers enjoyment for every outdoor enthusiast.

Today, about eight million visitors — about a quarter of them from out-of-state — generate $20 million in revenues and more than $100 million in economic community development, says Ken Caplinger, the deputy chief of the West Virginia State Park system. A combination of forces — a response to the Great Depression followed by visionary political and conservation-minded leadership and, later, support of the right candidate in presidential politics — worked in harmony to create the system, he says.

"The West Virginia legislature passed enabling legislation in 1933 to work with the federal government and its Civilian Conservation Corps (CCC), which provided the backbone of the operation," explains Caplinger. The CCC was the Depression-era agency created to put unemployed young men to work conserving the country's natural resources — timber, soil, and water. "At that time, the federal government was interested in helping West Virginia recover economically. Also, the state's political leadership looked and saw a state that had been depleted of its timber resources. They felt setting aside land would be beneficial."

Phenomenal Growth

So for the next nine years, the first of the parks — among them Holly River in Hacker Valley, Watoga near Marlinton, and Babcock in Clifftop — were built. World War II put further development on hold, but two men in particular had the vision and political acumen to reinvigorate the system beginning in the late 1940s.

The longevity of one park chief who held down the job during the system's second and third growth spurts — in the 1950s and 1960s — was a primary catalyst for the system's phenomenal growth, says Caplinger. Kermit McKeever served as the system's chief from 1947 to 1976. "He had incredible vision and foresight and was completely dedicated to preserving the state's natural resources," says Caplinger. "To be able to survive for that long in the political climate — and West Virginia is known for its rough-and-tumble political battles — was remarkable. He was a man of tremendous vision and constancy of purpose, and he blended those qualities with political skills."

Today, about eight million visitors to West Virginia parks – about a quarter of them from out-of-state – generate $20 million in revenues and more than $100 million in economic community development.

Additionally, early in McKeever's tenure, William Marland was elected governor in 1952, largely on a platform to expand the state park system. Shortly after his election, Gov. Marland was successful in having the state's citizens support a $4.4 million bond issue, notes Caplinger. Under Marland's leadership, Blackwater Falls State Park was opened, as was Cacapon in Berkeley Springs, located in the eastern panhandle. The governor initiated an ambitious cabin-building plan. There was also

cooperation from private industry. A refuge for both wildlife and tourists, Blackwater Falls is a monument to cooperation among energy interests, state government, and conservationists. Made available partially by a donation from West Virginia Power and Transmission Co. to the state, the park boasts — in addition to a rustic lodge — cabins, camping, picnic areas, trails, horseback riding, swimming, and, of course, the majestic views of the 63-foot high falls and canyon.

Kennedy Steps In

Then in 1960, the state's Democratic voters picked the right horse in the presidential primaries. The first "Southern" state to support John Kennedy, West Virginia is generally credited with making JFK a believable candidate. Partially as payback and partially because the West Virginia coal mining industry was hurting, Kennedy worked to see that federal money was made available to develop the park system further. It was during this time that Twin Falls in Mullens, Canaan Valley (just a few miles south of Blackwater Falls), Pipestem, and other parks were built. Pipestem, located between Beckley and Princeton, opened on Memorial Day 1970.

Now the flagship of the system, Pipestem offers something for every nature lover — or couch potato. Even if you consider "roughing it" to mean having to change television channels without a remote, you will be pleased. Visitors can spend hours simply sitting on the private balcony of their room at the 113-room lodge — named for McKeever — and gaze into the Bluestone Valley below. Venturing from their room, diners can enjoy a tasty supper in the top-floor dining room, from which they can also view the valley. Upon retiring, if the guest were to close only the screen door to the balcony, it would not be surprising on a cool summer morning to awake to a dense fog in

Well-designed, informative brochures for West Virginia's state parks and forests include maps with driving directions, information about accommodations and facilities, and lists of nearby attractions.

West Virginia State Archives

Kermit McKeever ran the state parks system with vision and foresight during its period of greatest expansion from 1947 to 1976.

his or her room. Horseback riding, hiking, golfing, swimming, archery, shuffleboard, and a myriad of other activities are available for the more active visitor.

If you'd prefer a bit more privacy, one of the 26 cottages or the 30-room Mountain Creek Lodge, 1,000 feet down and accessible only by tram, should please. Still, if you prefer no televisions or telephones (which Pipestem's cottages do have), then a short drive up state Route 20 to Bluestone State Park and its more rustic — yet fully stocked — cabins offers a refreshing alternative.

Side Trips

But being there — or in any West Virginia state park — isn't all the fun. As in other things, half the fun is getting there. Within striking distance of Bluestone, for instance, are the charming little town of Hinton, with its railroad days festival in October; the New River Gorge National Park, including Sandstone Falls; historic Lewisburg, the site of the annual state fair; the train tunnel that birthed the legend of the steel-driving folk hero, John Henry; and a collection of meandering back roads that offer a day's worth of adventures.

Along the ridge tops close by Blackwater Falls are the tiny villages of Davis and Thomas, where you can sense what life in a logging camp was like back in the first part of the 20th century. Canaan Valley State Park, with its premier ski slopes, is a mere 20-minute drive if you're in a hurry — which isn't likely. The scenery is simply too captivating. More akin to Canadian topography and climate, the valley and its flora and fauna require roll after roll of film. Seneca Rocks, with their jagged, narrow peaks pointing heavenward, are a short jaunt across a couple of mountains, and Elkins, with its Civil War history and renowned Forest Festival each October, is just down the mountain on U.S. 219.

Indeed, those side trips by millions of visitors are where the real economic benefit of the park system is felt. While the park system on paper looks as if it's operating at a loss, spending around $28 or $29 million each year to generate $20 million in revenues from its facilities, the nearby communities have en-

Michael Barrick

Bluestone Lake can be seen in the distance from this cabin at Bluestone State Park.

joyed economic development that almost certainly would not have otherwise occurred.

According to a study completed a couple of years ago by Marshall University in Huntington, W.Va., the system generates about $105 million for the communities located close to the parks. And, says Caplinger, that is an extremely conservative estimate. "We want them just to measure things we know we can hang our hat on — things like payrolls." Pipestem and Canaan Valley each generate about $10 million annually for their local economies.

Stewardship

Still, providing for an improved quality of life and preserving the state's precious natural resources — not turning a profit — remain key goals of the system, says Caplinger. "Most of our communities can't provide pools, picnic areas, and other amenities like urban centers can," explains Caplinger. "Our park swimming pool sometimes is the only one in the county. We're the only government department offering these opportunities to citizens in many of these communities."

Ultimately, says Caplinger, the role the parks play in protecting the natural environment and preserving cultural and historical landmarks is among their most important contributions to the state's citizens and their many visitors. "It's immeasurable. Our park naturalists take countless school groups on nature hikes. We do an awful lot of that, particularly in the spring of the year. There are a lot of children in West Virginia who, if not for that, wouldn't get to learn about the outdoors and how things fit together. That's a critically important part of what we do."

He continues, "Preserving the state's natural resources has always been one of the cornerstones of the park system. If we don't protect the integrity of our resource base, we won't have anything worth a darn. The amenities are developed to give people a place to stay while they enjoy the natural resources.

"That's stewardship. It's a real positive influence on the state at large."

It also makes an impression on out-of-state residents. "We draw a tremendous number of people from urban centers in Piedmont North Carolina — Raleigh, Winston-Salem, Charlotte, places like that — to Pipestem and Bluestone in particular," says Caplinger. And, he adds, folks from the Pittsburgh and Washington, D.C., areas regularly visit Blackwater Falls, Cacapon, and Canaan Valley, while folks from Ohio's metropolitan areas travel to parks in the western part of the state, such as North Bend in Cairo.

According to Caplinger, about 60 percent of the overnight stays in the parks' lodges and cabins are by out-of-state visitors. Conversely, about 60 percent of campers are state residents.

A New Wave?

Other than the addition of Stonewall Jackson State Park in Lewis County in the late 1980s, the park system hasn't changed much since Pipestem opened. Stonewall Jackson, located near where the renowned Confederate general was raised, was developed in the midst of more controversy than state leaders had ever experienced. Proposed largely to control flooding in nearby Weston and other communities downstream, the park — primarily a lake and adjoining picnic area — opened in the late 1980s. But it opened only after local citizens, many of whom had property that was going to end up at the bottom of the lake, battled unsuccessfully to stop its construction. Also, it is the only park in the system that charges a daily user fee — a modest $1. It was an experiment brought on by tight economic conditions at the time. However, Caplinger says, it's not likely other parks will institute such fees. "We just have a problem with charging taxpayers an entry fee. We're philosophically opposed to that concept."

Another unique aspect of the state's newest park is the involvement of private managers in improvements to the park costing $52 million. Those will include a lodge, cabins, and golf course — all scheduled to open next summer. An economic development bond sale for $42 million was combined with $10 million from lottery revenues to fund the project.

Caplinger says it's too early to say if this new model is the prototype for new projects. "We won't be able to say it's a model we want to duplicate until it's open three or four years."

Enclaves of Protected Space

That doesn't mean the state is putting future plans on hold. Caplinger says he's hopeful that a windfall of about $9 million from a new tax on video poker machines will be earmarked by

Providing for an improved quality of life and preserving the state's precious natural resources – not turning a profit – remain key goals of the system.

the legislature to support a bond issue of more than $100 million for further expenditures on the park system.

Don't expect new parks, though, he says. "Many of our parks are pushing 70 years old. We need to renovate them. We want to fix what we have." The system also has about $1.5 million budgeted to complete compliance with the American with Disabilities Act. And, he added, "We want to go ahead and invest in some of these parks — Pipestem, Blackwater Falls, Cacapon — that will be virtually guaranteed to turn a profit." Renovations will include adding lodge rooms and nine holes to the golf course at Cacapon. "We just really feel we have to do that sort of investment to provide for the future security of the system," explains Caplinger.

West Virginia State Archives

William Marland was elected governor of West Virginia in 1952 largely on a platform to expand the state park system. Once in office, he instituted an ambitious cabin-building program.

Nevertheless, turning a profit is not a top priority. "We generally don't have any areas that get into the black or break even. The revenues brought in by the lodges, cabins, and golf courses do generally exceed expenses, but when you're providing free recreational opportunities, it's just not possible to be profitable overall. We have it as a goal, but we don't let it drive the bus, so to speak. That's the difference between public stewardship and private enterprise. We have to serve all of the public, not just our pocketbooks."

Ultimately, he says, it's important to remember the prime directive. "The park system provides a major role for protecting green space in a state that unfortunately has a pretty poor record of protecting the environment. We have these enclaves of protected space. I think they're a super model." He added that the park system is also good for the state's image. "West Virginia for years has had a negative stereotypical image. It's unfair, and I don't agree with it, but West Virginia evokes a certain image for certain people. Folks will come to Pipestem and say, 'My gosh, we didn't know West Virginia had anything like this. I wish my state was progressive like this.' It's some of the best P.R. and image enhancement you could imagine."

Caplinger is correct. Often, when you think of West Virginia, you think of coal — or even less flattering images. Certainly, coal, oil, and gas are valuable natural resources and among the state's most plentiful. Yet the people of West Virginia, in their support of development of the park system, have demonstrated that they understand that energy assets are not the only natural resources the Mountain State boasts. The hills, ridge tops, valleys, lakes, streams, trails, and slopes are equally valuable because of what they offer people — a step back in time, an opportunity to be a visitor in the habitat of wildlife, and a moment of quiet meditation. N&T

Want to know more? Call 1-800-CALL WVA or visit www.wvparks.com.

Michael Barrick, a native of Clarksburg, W.Va., is an English teacher at Hudson, N.C.'s, South Caldwell High School. He is the author of the book The Hillbilly Highway *and numerous articles for various newspapers, magazines, and Internet publications. Contact him at mbarrick@abts.net.*

It's My Dream

Along this asphalt maze
which circumscribes
the subdivision, five
hundred monopoly houses
elbow into cul-de-sacs.
All the flowering laurel here
comes in black plastic pots.

Nights, when the pillow
palms my face,
the congestion on this ridge
clears itself into deep woods,
tree crotches that give birth
to moons.

A screech owl roosts
on every branch, unafraid
of saw's teeth
whose pitch is wrong
for dropping souls.

Silence, and night
puddles in their eyes —
a fedora's crown
quicksilver with spring water
and sky.

There are no stumps here,
half-lives that hold a man's ass
suspended
between earth and heaven;
only this limestone boulder
whose moss knows my hips.

Close to waking, I listen
to the forest preen its feathers —
a million owl throats who draw breath
for speech — words whose thrum
resonates in my hollow
like brass bassoons.

Enduring day, I watch those houses
squat on their circles — each one
as another, and hum them
to myself.

— R.A. Skeens

Born on Christmas Day, R.A. Skeens still gets shorted on presents. A retired coal miner who comes from the same town as novelist Lee Smith, Skeens is a member of the Appalachian Center for Poets and Writers at the Arts Depot in Abingdon, Va. His poetry has won first place in the Virginia Highlands and the Chautauqua Creative Writing contests. He has had work published in The Sow's Ear Poetry Review, AppalTalk, A Country Rag, *and* Insurgent Metaphor.

Prodigal Summer
by Barbara Kingsolver

HarperCollins
New York – 2000
$26.00 (hardcover)

Just as surely as the return of a lush, verdant summer to the Southern Appalachians, Barbara Kingsolver was bound to write another novel — but what to do for an encore after the philosophically complex and critically acclaimed *Poisonwood Bible* of 1999?

The answer is *Prodigal Summer,* a novel more narrow in scope than its predecessor and possibly more flawed. Yet ultimately it is just as satisfying as, well, a warm summer day spent near the novel's setting of "the limestone river cliffs along the Virginia-Kentucky border."

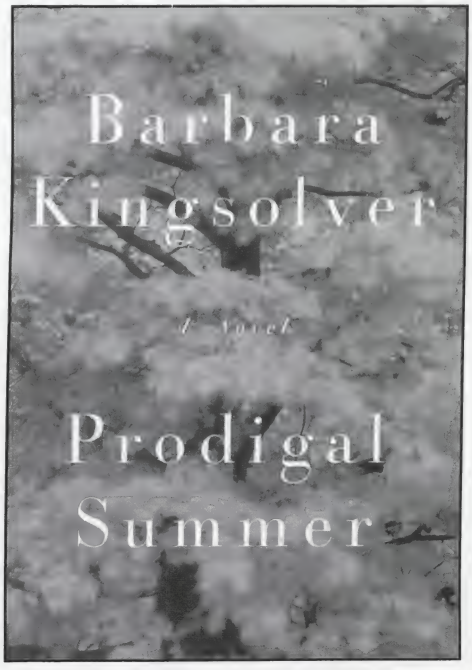
Much has been made by other reviewers of Kingsolver's return in this latest novel to her Kentucky roots as well as to her environmental, even eco-feminist interests. So while the setting is not as sweepingly international and political as in *Poisonwood Bible,* it will be familiar, certainly, to readers of *Now & Then.* Even if readers have never heard of the tiny town of Zebulon, Ky., where the novel's characters reside, they will recognize references to Roanoke, Va., where one of the characters goes for cancer treatments; to Knoxville, Tenn., mentioned in connection with Dixie Chicks concerts in the days before they hit the big time; and to "the entire border of the state of Tennessee ... ringed with shacks advertising cheap fireworks."

Is the portrayal of our general region flattering or even accurate? Not always: Kingsolver, or at least her characters, occasionally reinforce regional stereotypes. One protagonist attempts "to reconcile a hillbilly accent with signs of a serious education." Another, "a dire outsider from the other side of the mountains, from *Lexington* — a place in the preposterous distance," struggles to understand the "nonsensical phrases" of mountain speech. It was, she concludes, "a whole different language from city speech."

As perhaps the above examples indicate, another potential flaw of the novel originates with its three rather unlovely protagonists, at least as they are when they begin their prodigal summer. Kingsolver has always tended towards didacticism, and here all of the main characters "grab ... every opportunity as a pulpit," as one of her characters says of another.

At the novel's outset, Kingsolver seems to be cycling through three separate stories, each individual's tale contained in chapters scattered throughout the book. All of the "Predators" chapters, for example, tell the story of Deanna Wolfe, a guardian of the forest atop Zebulon Mountain, a woman who is "used to being sure." Her chapters chronicle both her study and protection of a coyote family returning to the ecosystem and her summer fling with Eddie Bondo, a rancher and rambler from out West. That summer fling is vividly described. Surely the description of Deanna "want[ing] to stop and tear [Eddie] apart on the trail, swallow him alive, suck his juices, and lick him from her fingers" is worth the price of the book.

Down in the valley, the "Moth Love" chapters follow Lusa Maluf Landowski's concerns about how to befriend or even abide the "sorry-ass bumpkins" she must live near in return for her electric but troubled and, ultimately, short-lived marriage to Zebulon native Cole Widener. Across town, retired teacher and farmer Garnett is described in the chapters marked "Old Chestnuts" as being "secure in his understanding of what God's word did and did not mean to suggest." No wonder his organic-gardening, Unitarian-church-attending neighbor Nannie Rawley calls him a "sanctimonious old fart" — twicet.



© 2000 Steve Taylor/Stone

Yet meaningful novels are about the evolution of complex if flawed characters, and an observant reader can track the progress of the novel's characters through *Prodigal Summer's* lushly beautiful world just as surely as Deanna tracks her coyotes, Lusa raises her goats, or Garnett cultivates his chestnut trees. The characters meet only in the most surprising of ways despite the limited size of their ecosystem. (As an example: Readers should pay attention to the appearance of two green brocade armchairs.) Yet they come to an awareness and acceptance of all the species, especially Homo sapiens, in their shared world.

Most importantly, Kingsolver uses her flawed characters to emphasize one of her favorite themes: the importance of a created family. The distinction between "natural" parents (as in *naturally* good and nurturing) versus biological parents (connected to offspring by genetics but not by love) is a topic Kingsolver has explored ever since her first novel, *The Bean Trees,* published in 1988. Indeed, the end of *Prodigal Summer* is not spoiled for readers even if they already know that all three protagonists come to a clearer understanding of themselves as family members. So just as there's "always more to a story than a body can see from the fence line," there's more to *Prodigal Summer* than the initially cranky characters and silly stereotypes about hillbilly talk. Ultimately, the novel itself is prodigal, not in its humble return after squandering resources but in its literary richness as it rewards the reader who comes over the fence line, into the yard, and up onto the porch for an enjoyable read.

— Kathy Griffith Fish

Kathy Griffith Fish grew up in Kansas City, Mo., but is a Kentucky convert, having taught English at Cumberland College in Williamsburg, Ky., for 17 years. She has taught Barbara Kingsolver's works in everything from freshman composition to an upper-level course in women's literature.

Reviews

West Virginia Quilts and Quiltmakers: Echoes From the Hills
by Fawn Valentine with the West Virginia Quilt Search, Inc.

Ohio University Press
Athens, Ohio – 2000
$60.00 (hardcover), $29.95 (paper)

"Quilts warm the body and soul," writes Fawn Valentine in *West Virginia Quilts and Quiltmaking: Echoes from the Hills.* "A quilt can wrap the human psyche in a loving embrace. Family quilts are symbols of bloodlines reaching across decades and generations."

Inspired by a 1983 exhibition of vintage Kentucky quilts, three West Virginia extension agents set out to document West Virginia's quilts. By 1990, Mary Neil Godbey, Margaret Meador, and Mary Lou Schmidt had organized the West Virginia Heritage Quilt Search. Hundreds of volunteers from quilting and homemaking clubs joined the effort, including author Fawn Valentine. Four thousand quilts and over 1,000 pages of oral history transcriptions later, *West Virginia Quilts and Quiltmaking* came together.

Fawn Valentine is a longtime resident of Monroe County, W.Va. Employed by the Housing Authority office in Greenbrier County, she also teaches art appreciation through distance learning at Beckley, W.Va.'s, Mountain State University, formerly the College of West Virginia. Valentine became interested in quilt history while attending graduate school in Roanoke, Va. She joined the project in 1991 after seeing an ad recruiting researchers to register quilts. Later she volunteered to write the book.

During the quilt registration phase, the volunteers quickly realized the importance of the stories that came with each quilt. Dozens of volunteers taped and collected family reminiscences and transcribed them. These stories form the core of a beautifully photographed and organized collection. In addition to 159 color photographs, each quilt's origin is mapped and its oral history retold. Heirloom photos of quilters and their homes are often included, giving the reader further insight into each quilt's history.

Interest in quiltmaking had steadily declined after World War II until the period preceding the American Bicentennial. As interest in frontier history and the skilled crafts peaked in the late 1970s, quilting experienced a revival that continues today. Nearly every state with a quilting legacy has produced similar books.

A number of things set this book apart, primarily the detailed quality of scholarship. A database analysis of the quilts includes the demographics of the quiltmakers and details of the construction of the 4,078 quilts. Valentine notes the designs and quilting of (predominantly) Scotch-Irish, Welsh, African American, and German settlers and their descendants. The introduction contains a wealth of historical and technical information to provide non-quilters with a frame of reference for understanding the terminology in the book.

Such details are important, but the personal stories of the quilters engage even the casual reader. "Every quilt tells a story," says Valentine. "With her quilt, the quiltmaker recorded the circumstances of her world, her recourse to design vocabularies, and to material goods." (Let us note for the record that 20 male quilters were also documented.)

Many stories are touching; some are very sad. Adaline Delia Carter, who lived from 1868 until 1887, completed a beautiful plume design quilt for her hope chest in 1884. She died, unmarried, at age 19. Jane Jones' unusual circle-patterned quilt burned in a house fire only a year after it was documented. Ann Lewis appears in a 1908 Victorian-era photograph wearing a satin damask gown. Identical fabric appears in her crazy quilt. Louisa Benten and Margaret Ruble pieced quilts from Union Army uniforms and World War I uniforms and blankets.

The quilts range from the very fine to the extremely utilitarian and represent a true cross section of quilted products. One of the oldest quilts in the United States, one dating back to 1795, is represented. Jane Travers Gatewood, who was born around 1750 in Colonial Virginia, made this fine example of 18th-century quilting technique. Margaret Ann Whitehead Etheridge created an elegant silk quilt that has miraculously survived since 1803. Some of the later quilts, those made just prior to World War II, were from commercial patterns disseminated in newspapers and women's magazines. Older quilts trace the development of those patterns we know as "traditional," patterns that were handed down through the generations. Some utilitarian quilts, such as the one made by Artie Murry in 1938, clearly show the origin of the recycled fabrics. If you look closely, it is easy to see the shape of an overcoat lapel in this wool quilt.

The book falters in only one respect. Shown with an infant's dress, a 27-inch by 39-inch baby quilt made by Lola Bell Brown Bee, who lived from 1861 to 1937, is the only quilt whose dimensions are specified. We are left to guess at the measurements of the others. Older quilts were not generally as big or as uniformly sized as modern quilts. Inspired quilters of today are left guessing at proportions if they wish to draft and re-create the heirloom patterns.

West Virginia Quilts and Quiltmakers gives us a unique perspective on the art, craft, and history of the state. The West Virginia Heritage Quilt Search documents the everyday lives of otherwise anonymous individuals who were the true builders of modern West Virginia. The colorful, tragic, heroic, and strong pattern themselves into a family quilt of the Mountain State.

—Jane Hicks

Jane Hicks is a native of Upper East Tennessee and has been quilting since the age of six. Her "literary quilts" depicting the works of Appalachian authors Jo Carson and Sharyn McCrumb were featured in Gallery 105 in Shepherdstown, W.Va. Her poetry has frequently appeared in Now & Then.

The Gifts and Thefts
by David Staudt

The Backwaters Press
Omaha, Neb. – 2001
$12.00 (paper)

Air flows through David Staudt's impressive first book of poems, *The Gifts and Thefts.* It lifts bedsheets from a clothesline in sailing billows, sharpens the sumac of an Allegheny autumn, and bakes along the banks of a sluggish river in late summer. Air infects asthmatic

lungs, making them "stiff-valved woodwinds"; it fills up with snow and woody musks or collects in steamy, stale pools in a nuclear submarine. But most of all, the currents carry us, unhurried, through memories and longings of people rooted in the beautiful and blighted landscapes of Northern Appalachia.

The Gifts and Thefts gathers poems written over the course of the last 20 years, many of which have appeared in notable literary magazines. Staudt's collection takes its title from James Agee and Walker Evans' photojournalistic collaboration, *Let Us Now Praise Famous Men,* a book regarded since its appearance in 1940 as a monument to the working class poor people of Depression-era Alabama.

The second half of *The Gifts and Thefts* opens with an epigraph, a lengthy quote from Agee observing that the ability to reach the apex of human potential is largely dependent upon the "gifts and thefts of economic privilege." Certainly the question of class permeates Staudt's work, though it alone is not what drives the book. Poems such as "Temporary" and "At the Naval Nuclear Prototype, Ballston Spa" put us on the job with a fruit picker and a submariner, respectively, but the pieces also render labor and conflict in language as tough and resilient as the men who do the work. Of an orchard harvest, Staudt writes in "Temporary":

While a scald of sunburn pinked my legs
I tore down bushels of nut-hard Elbertas
where fourteen or more buds studded a twig,
their lobes closed along a fresh suture,
so new and weak they could be rubbed off.
What was lost in number was made up in size
and ease of harvest, fewer to the ton.

The syllables here in tight, muscular rhythms pop like fruit being torn from branches. Staudt's lines harvest tension.

In "At the Naval Nuclear Prototype, Ballston Spa," for instance, a confrontation between long-suffering submariners and naïve, protesting college kids pressurizes the poem.

One word out of anyone, and one
of these hardlooking squids will break
down, croak out the last ten years
of his life in an epic
of recession and betrayal:
the interviews crashing badly
in silence, courses withdrawn from,
father's wills: the handshake and perfect
empathy, recruiters' smooth lies.

What I especially like about this book is its refusal to turn a blind eye to the difficult while still celebrating the beautiful.

Books Worth Mentioning

Appalachian Wildflowers by Thomas E. Hemmerly (Athens, Ga.: University of Georgia Press, 2000; $22.95 paper). Hemmerly's useful guide to over 300 wildflowers is accompanied by a color photograph of each flower. Short chapters on the ecology of the entire Appalachian Mountain chain and on how to identify wildflowers are included.

The Jack Tales: Stories by Ray Hicks as told to Lynn Salsi (New York: Callaway, 2000; illustrations by Owen Smith; $24.95 hardcover). Three Jack tales appear in this oversized, lavishly illustrated storybook: "Jack and the Northwest Wind," "Jack and the Bean Tree," and "Jack and the Robbers." Beech Mountain, N.C., resident and famed storyteller Ray Hicks tells the same tales on an audio CD that accompanies the book.

Mountain Hands: A Portrait of Southern Appalachia by Sam Venable; photographs by Paul Efird (Knoxville, Tenn.: University of Tennessee Press, 2000; $55.00 hardcover; $25.00 paper). Long-time *Knoxville News-Sentinel* writer Sam Venable presents 41 features on ordinary and extraordinary Southern Appalachian people who work with their hands, including skilled craftspeople, loggers, beekeepers, butchers, gravediggers, farmers, and gardeners. The texts are honest, funny, and heartwarming, and the black-and-white photographs accompanying each story are exquisite.

Rivers of Kentucky by David and Lalie Dick (North Middletown, Ky.: Plum Lick Publishing, 2001; with a forward by Gurney Norman; $22.00 hardcover). A husband-and-wife writing team crafts a rich and readable journey across the many rivers of Kentucky. The story, say the Dicks, "flows from a central concept — the great water cycle — and becomes a nonfiction narrative of the human condition."

Sitting on the Courthouse Bench: An Oral History of Grundy, Virginia edited by Lee Smith (Chapel Hill: Tryon Publishing Co., 2000; $32.00 hardcover). This book preserves the rich stories of native Grundy residents before downtown Grundy relocates to higher ground as a remedy against more major flooding. (Nine floods have occurred there since 1929.) Masterminded by two Grundy natives — bestselling author Lee Smith and her childhood friend Debbie Rains, a longtime Grundy High School English teacher — these oral histories were collected over two years by Grundy High School students.

The Smokeless Coal Fields of West Virginia: A Brief History by W.P. Tams (Second edition; Morgantown, W.Va.: West Virginia University Press, 2001; with an introduction by Ronald D. Eller; $20.00 paper). Written by the coal baron who built the town of Tams in Raleigh County, W.Va., and its mine in the early 20th century, this update of the 1963 edition is a brief history of one of West Virginia's most productive coal regions. Ron Eller's new and insightful introduction provides a context for the author, the region, and the coal industry in Central Appalachia.

Theodore Roosevelt: Letters from a Young Coal Miner by Jennifer Armstrong (New York: Winslow Press, 2001; $8.95 paper). The first in a series of "Dear Mr. President" books for young readers, this book features a fictional exchange between 15-year-old Frank Kovacs, a Polish immigrant working in the coal mines of Eastern Pennsylvania, and Theodore Roosevelt after he assumes the presidency in 1901. Well-researched, the text includes historical photos, cartoons, sketches, biographical information, a timeline, and web site for additional information.

— Marianne Worthington

The gifts and thefts here are not only those of privilege, or its lack; they are the everyday joys, as well as losses in the midst of joy, that shape the human spirit. Poems in the book's early pages — such as "Red Sumac," "Tioughnioga River Bottom," and "The Light in Fall Creek" — offer spectacular moments of contemplation and wonder in a glorious, shining landscape. We find "possum paths tooling the high grass" in "Red Sumac"; a shale-lined sleek river is "flagged as cleanly as roman roads" in "Tioughnioga"; and teasel in the poem "The Light" is "touched off" like "purple magnesium sparklers." Yet amidst all this natural beauty, we find the poem "Roadside Crosses," an homage to those grim reminders of highway carnage that the grieving erect to mark the sites of fatal car accidents.

All across the country these rivets
tack the upholstery of our
memories and care to the land,
lest we drift too high into the
country of plans and anxiety,
bicker and regret, climbing at
seventy miles per hour with reckless
inattention to each other.

A poem from the second section, "New Pain on the River," recounts an attempt to return a hooked fish, too small to keep, to the river. Throughout the poem, the reader is caught up in the details and good intentions of this seemingly merciful act, the struggle to dislodge the stubborn hook and set the fish free. But the fish, once freed, "lists," "scuttles," and goes belly-up despite the fisherman's apparent goodwill. In the final stanza, we are reminded of the human capacity for thoughtless cruelty and ineptitude, a familiar pain made new by this poem.

Coming out before a workday
to love the land, and put down,
for a little time, worry, thus
I inject new pain into the river.

Staudt grew up in Northeastern Pennsylvania, and it is from this landscape that many of his stories and images are drawn. Despite the scenic mountain vistas and peaceful woodlands, it is still a world filled with industrial gashes. Yet the poet finds a spiritual life among the scars. In the poem "Souls," for instance, a nun teaching kindergarten in a decrepit factory town takes her young students out to play on a snowy day, the sky as bleak as their fenced-in lives. She tells them to "'pretend you are the top of a mountain.'" While they stand peering into the falling snow, learning the "dizziness when snowflakes stop mid air,/and the body starts falling into the sky," Sister Pamela "tells the children how their souls/will feel, returning to heaven."

At first read, *The Gifts and Thefts* might appear to be several collections in one. Just when we begin to tease out one conflicted narrative, we turn the page and find ourselves in a quiet clearing in the woods. However, these shifts do not mean the collection lacks unity or structure. It is divided into two sections, each of which has three distinct movements. While the poems are not arranged in exact chronological order, we do have a sense that separate sections are reflective of particular periods in the poet's personal or artistic development. For the most part, the groupings make sense, underscoring certain themes or imagistic patterns. In individual poems, I don't find every line break defensible, but this does not detract from the book's overall grace.

The poet's own life, and the lives of others who have touched him — kin, lovers, comrades, neighbors, even animals and plants — are richly rendered in *The Gifts and Thefts.* Staudt's is a strong and original voice, and his poems, so elemental in matter, give us a vibrant world charged with love and grief.

— Leslie M. LaChance

Leslie M. LaChance currently lives in Southern Appalachia, where she teaches English to international students at The University of Tennessee in Knoxville.

Blind Horse: Poems
by Jeanne Bryner
Bottom Dog Press
Huron, Ohio – 1999
$9.95 (paper)

With her epigraph taken from Thomas Southerne's 1693 drama, *The Maid's Last Prayer* — "The blind horse is fittest for the mill" — poet Jeanne Bryner offers her vision of working-class dreams of the good life disintegrating into physical, mental, and spiritual fatigue.

The poems collected in Bryner's *Blind Horse,* which focuses on the Central Appalachian outmigration to the steel mills of Ohio, tell poignant stories of one West Virginia family fragmented by industry. In "Road from West Virginia," the father's declaration, *"Fast money, big money./ Honey, farm boys are dinosaurs, coal mines/are tar pits,"* expresses the blind hope of many whose alternatives lay in joining the working force of Appalachian extractive industries or in moving to mills in the flatlands so that Appalachians themselves became the extracted resource.

The seer in Bryner's tragedy is the grandmother, who realizes that destruction, particularly that of her daughter, lies in the mill: *"Thunder comes, rides a narrow saddle./His ring's her rein .../that's where they're going to die."* Not only is the family doomed, so is the mill village, its fate in the hands of those who value only profit. In "How to Say It," the speaker asks, "Aren't there two ways to spell *steel?*/And doesn't one of them mean something's been taken away?"

Bryner's text begins in a defunct mill village, flashing back to a fragile mountain woman trapped by wifehood and to the dreams of a man hoping to escape the mines. The poems move through stories of the mill's demise and of working men's universal search for working-class justice. The author closes with her return to the deserted village. Recognizing the relentlessness of her focus on loss and suffering, Bryner concedes in "Anything is Possible," "You can make the story different." But tampering with the truth would be blindness, and she insists on reality. Here men are reduced to animals: "Every night we stampede to the time clocks," she observes in "Rank and File 1959."

The poems about women speak most poignantly and originally of the author's understanding, as in "Sunday Morning," a poem about the family's attending church after a Saturday night of the father's drunken violence.

Mama stands blotting her red lipstick,
and the tired Bible waits on our gray
kitchen table ...

We wear strawberry pink dresses, the boys
wear
blue sailor suits. Bacon grease is Mama's
scent....
Her left eye is a slit under a purple avalanche,
and purple is the color for the church,
the color for royalty.

In this world, women are mutilated by life, if not physically, then emotionally, as in "Apple Chunks," a poem about a child's recognition of her mother's intractable depression:

In May, Aunt Hattie took a gall bladder attack,
and my cousin, Ruth Ann, showed her three
stones
in a mustard jar. One was big as an acorn.
And Luella
Donavan had a breast cut off for cancer (we
never knew
which one), and Janet Porter's Mama had her
female organs
removed when we were in the sixth grade.

All these women came home sickly pale from
ether,
then one day you'd see them at the A&P
laughing by sack potatoes, their cheeks pink
as strawberry milkshakes. I don't figure my
Mama
bought a slab of bacon by herself after I was
nine.

If the fathers are inarticulate, harsh, and brutal, Bryner understands that they too are wounded by degradation. In "Our Fathers," two men get drunk after witnessing a horrible factory death:

and how they missed those sweet, lazy
West Virginia nights, and how hot Ohio was,
hot and flat, and people here called us *hicks.*

And *ridge runners,* but by God, we knew
how to work. And our fathers never missed a
shift.

Her passions sometimes lead to a poetry spewing outrage, as in "Blue Collar": "Without the working class,/what is America? What is America?" Such generalizations are less powerful than her stories of individual experience. Occasionally, images are too incongruously and overzealously introduced without contextual development.

However, Bryner does achieve unity through theme, epigraphs, metaphors, and images as reminders of the grayness of life, sometimes contrasted against the pink of innocence. The poem "Snow Horses" demonstrates the power of the horse as metaphor as Bryner dreams of the restoration of broken men: "Without a sound fingers bloom, sleeves unfold/lost arms, legs fill pinned trousers. The men run—/pale and glistening—their boots are hooves."

In "Blue Collar," Bryner asks, "Did your teachers ever make you memorize/ the names of coal strikes? steel leaders?/ tell you the story of the Triangle Shirtwaist Company?/the chicken factory in Hamlet, N.C.?" While such lines do not reveal her poetic strengths, they address the importance of her poetry.

Other collections, including Ron Rash's powerful *Eureka Mill,* focus on the Appalachian outmigration. But while Rash offers a contemplative, carefully controlled perspective, Bryner's poems offer the passion of immediacy, of tragic raw experience. In the tradition of Harriette Arnow's *The Dollmaker,* she offers in her best poems a perspective needed in contemporary Appalachian poetry, particularly in her portrayals of the power of industrialization on minuscule details in the lives of women, children, and men. In "A Release of the Spirit," she affirms her role as translator of these haunting stories of displacement: "We are the children whose fathers learned/the world is flat/after work there's nothing,/ but the heart's quiet roar."

—Joyce Compton Brown

Joyce Compton Brown teaches English at Gardner-Webb University in Boiling Springs, N.C. She spends as much time as possible at the family singlewide at Stillhouse Creek on Linville Mountain, where she reads, writes, and sits on rocks. She has published poetry and essays on Appalachia in various journals, with a special interest in Appalachian writers, justice, and women's lives.

Between Mountains Girl Don't Echo

The barn was cold. Icicles off roof slants.
Stalks splitting on their sticks. Leaf whispers, wind caving tin.
My hands were gummy. Gloves on black tarp. Baling rope grips
to the fleshy part. Tobacco blood on a radio dial, maple syrup, the handle of a fork.
Cows huddled, their wet snouts dripping, huffed and fogged air. Socks wet above
the rubber boot, hooves through a creek's thin glaze. Heavy breathing against silence.
California's to the other side of the world. Man in an outhouse, man in his self-designed
bed-in-a-box. My boy doll, the basement, sawdust.
Supper's on the table, that black octagon. Peas nestled in mashed potatoes, bird eggs,
down the hatch. I think some voice might spring out, all rust and metal, ring
the blue plate of sky. Green worms falling, snow falling. But none does.

—Angie Hogan

Originally from Parrottsville, Tenn., Angie Hogan spent four years in Nashville and currently resides in Virginia. Her poetry has appeared or is forthcoming in Third Coast, The Greensboro Review, *and* Phoebe. *She earned her master's of fine arts degree from the University of Virginia, where she was the recipient of a Javits Fellowship.*

Reviews

Books in Brief

An Appalachian Tragedy: Air Pollution and Tree Death in the Eastern Forests of North America edited by Harvard Ayers, Jenny Hager, and Charles E. Little (San Francisco: Sierra Club Books, 1998; $45.00 hardcover).

Appalachian Summer by Marcia Bonta (Pittsburgh, Pa.: University of Pittsburgh Press, 1999; $15.95 paper).

Caverns of Night: Coal Mines in Art, Literature, and Film edited by William B. Thesing (Columbia, S.C.: University of South Carolina Press, 2000; $39.95 hardcover).

Circling Windrock Mountain: Two Hundred Years in Appalachia by Augusta Grove Bell (Knoxville, Tenn.: University of Tennessee Press, 1999; $17.50 paper).

The Cratis Williams Chronicles: I Come to Boone edited by David Cratis Williams and Patricia D. Beaver (Boone, N.C.: Appalachian Consortium Press, 1999; $14.95 paper).

Crossing Wildcat Ridge: A Memoir of Nature and Healing by Philip Lee Williams (Athens, Ga.: University of Georgia Press, 1999; $24.95 hardcover).

Early Art and Artists of West Virginia: An Introduction and Biographical Directory by John A. Cuthbert (Morgantown, W.Va.: West Virginia University Press, 2000; $85.00 hardcover).

Foxfire 11 edited by Kaye Carver Collins, Lacy Hunter, and Foxfire students (New York: Anchor Books, 1999; $15.95 paper).

Grandfather Mountain: A Profile by Miles Tager (Boone, N.C.: Parkway Publishers, 1999; $14.95 paper).

The Great Smokies: From Natural Habitat to National Park by Daniel S. Pierce (Knoxville, Tenn.: The University of Tennessee Press, 2000; $18.95 paper).

Monacans and Miners: Native American and Coal Mining Communities in Appalachia by Samuel R. Cook (Lincoln, Neb.: University of Nebraska Press, 2000; $29.95 paper).

The Natural Arches of the Big South Fork: A Guide to Selected Landforms by Arthur McDade (Knoxville, Tenn.: University of Tennessee Press, 2000; $12.95 paper).

Out Under the Sky of the Great Smokies: A Personal Journal by Harvey Broome, with a new forward by Michael Frome (Reprint Knoxville, Tenn.: University of Tennessee Press, 2001; Knoxville, Tenn.: Greenbrier Press, 1975; $15.95 paper).

Recipe for Blackberry Cake, poems by Diane Gilliam Fisher (Kent, Ohio: Kent State University Press, Wick Poetry Chapbook Series Two, 1999; $4.75 paper).

Smokehouse Ham, Spoon Bread, & Scuppernong Wine: The Folklore and Art of Southern Appalachian Cooking by Joseph E. Dabney; forward by John Egerton (Nashville, Tenn.: Cumberland House, 1998; $19.95 paper).

Where There Are Mountains: An Environmental History of the Southern Appalachians by Donald Edward Davis (Athens, Ga.: University of Georgia Press, 2000; $40.00 hardcover).

The Wild East: A Biography of the Great Smoky Mountains by Margaret Lynn Brown (Gainesville, Fla.: University Press of Florida, 2000; $24.95 paper).

—MW

Milkweed

It drifts like snow or old ash, settling on
the dust of the roadways as you and I
descend into thickets, flanked by the fragrance
of honeysuckle and white primrose.
I tell myself softly, *this is how love begins*—
the air alive with something inconceivable,
seeds of every imaginable possibility
floating across the wet grasses, under
the thin arms of ferns.

I recall how my grandmother imagined
these wanderers were living beings,
some tiny phyla yet to be classified as life.
She would say they reminded her of maidens
decked in white dresses, waltzing through air.
Even after I showed her the pods from which
they sprang, blossoming like tiny spiders,
she refused to believe.

Now, standing beside you in the crowded
spring haze, I watch them flock—emerge from
brittle stalks, bursting out upon the world as
young lovers do—trysting in the tall grasses,
resting fingers lightly in tousled hair.
Listen, and you can hear them whisper
in the rushes, gazing out at us, wondering—
what lives are these?

—Bradford Tice

Bradford Tice recently graduated from the University of Tennessee at Knoxville, where he studied creative writing under Now & Then *contributors Marilyn Kallet and Arthur Smith. Tice's poetry has appeared in* Mississippi Review *and* Firefly Magazine, *and has been accepted by* Appalachian Magazine *and* Hawaii-Pacific Review. *He has won awards from the Knickerbocker Poetry Contest and the Margaret A. Woodruff Creative Writing Competition.*

Late August, Walking the Ridge

Possum grape and shadows
climb trunks of old locust,
snake-like where mostly I'm silent,
moving through a twilight

that moves, its language
the pulse of a thousand cicadas
whose rhythm reminds me
of what I could never say.

Better to name aboretumis thistle,
whirling emporeia in bloom

DISCOVER THE UNEXPECTED. See Appalachia through new eyes in a unique publication—*Now & Then* magazine—by becoming a member in the Center for Appalachian Studies and Services. Or, give a membership as a gift.

Membership benefits include:

- three issues of *Now & Then*
- two issues of the Center's newsletter, *News*CASS
- special member rates for programs
- discounts on books and recordings.

YOUR MEMBERSHIP SUPPORTS the Center's many programs, publications, and projects in teaching, research, and service in Appalachia; exhibitions, concerts, gallery talks, and workshops; and acquisition and care of collections at the Archives of Appalachia and the Reece Museum.

I'd like to give a Center for Appalachian Studies and Services gift membership

To: Name _____ (Please print)

Address _____

City _____ State _____ Zip _____

Gift card should read: _____

_____

From: Name _____ (Please print)

Address _____

City _____ State _____ Zip _____

❑ $20 Payment enclosed ❑ Please bill me

Make check payable to CASS/ETSU and mail with this card to the Center for Appalachian Studies and Services, ETSU, Box 70556, Johnson City TN 37614-0556.

BI 31

lands Review, North Carolina Literary Review, Tar River Poetry, *and* Pembroke Magazine. *She teaches at the North Carolina Folk School at Brasstown.*

East Tennessee State University is one of 46 institutions in the Tennessee Board of Regents system, the seventh largest system of higher education in the nation. The Tennessee Board of Regents is the governing board for this system which is comprised of six universities, 14 community colleges, and 26 area technology centers. The TBR system enrolls 80 percent of all Tennessee students attending public institutions of higher education.

Tennessee Board of Regents: Edgar R. "Buddy" Bowers, Harriman; Demetra Godsey Boyd, Clarksville; Noble Cody, Cookeville; The Honorable Vernon Coffey, Commissioner of Education, Nashville; Robert Jack Fishman, Morristown; Arles B. Greene, Goodlettsville; Clifford H. "Bo" Henry, Maryville; Jane G. Kisber, Jackson; W. Keith McCord, Knoxville; Leslie Parks Pope, Kingsport; Richard G. Rhoda, Executive Director, Tennessee Higher Education Commission, Nashville; J. Stanley Rogers, Manchester; Maxine A. Smith, Memphis; Bethel Arrita Summers, Faculty Regent, Tennessee Technology Center at Dickson; The Honorable Don Sundquist, Governor of Tennessee, Nashville; William H. Watkins Jr., Memphis; The Honorable Dan Wheeler, Commissioner of Agriculture, Nashville; Derreck Whitson, Student Regent, East Tennessee State University, Dandridge.

Reviews

Books in Brief

An Appalachian Tragedy: Air Pollution and Tree Death in the Eastern Forests of North America edited by Harvard Ayers, Jenny Hager, and Charles E. Little (San Francisco: Sierra Club Books, 1998; $45.00 hardcover).

Appalachian Summer by Marcia Bonta (Pittsburgh, Pa.: University of Pittsburgh Press, 1999; $15.95 paper).

Caverns of Night: Coal Mines in Art, Literature, and Film edited by William B. Thesing (Columbia, S.C.: University of South Carolina Press, 2000; $39.95 hardcover).

Circling Windrock Mountain: Two Hundred Years in Appalachia by Augusta Grove Bell (Knoxville, Tenn.: University of Tennessee Press, 1999; $17.50 paper).

Monacans and Miners: Native American and Coal Mining Communities in Appalachia by Samuel R. Cook (Lincoln, Neb.: University of Nebraska Press, 2000; $29.95 paper).

The Natural Arches of the Big South Fork: A Guide to Selected Landforms by Arthur McDade (Knoxville, Tenn.: University of Tennessee Press, 2000; $12.95 paper).

Out Under the Sky of the Great Smokies: A Personal Journal by Harvey Broome, with a new forward by Michael Frome (Reprint Knoxville, Tenn.: University of Tennessee Press, 2001; Knoxville, Tenn.: Greenbrier Press, 1975; $15.95 paper).

Recipe for Blackberry Cake, poems by Diane Gilliam Fisher (Kent, Ohio: Kent State University Press, Wick Poetry Chapbook Series Two, 1999; $4.75 paper).

Smokehouse Ham, Spoon Bread, & Scuppernong Wine: The Folklore and Art of Southern Appalachian Cooking by Joseph E. Dabney; forward by John Egerton (Nashville, Tenn.: Cumberland House, 1998; $19.95 paper).

Where There Are Mountains: An Environmental History of the Southern Appalachians by Donald Edward Davis (Athens, Ga.: University of Georgia Press, 2000; $40.00 hardcover).

The Wild East: A Biography of the Great Smoky Mountains by Margaret Lynn Brown (Gainesville, Fla.: University Press of Florida, 2000; $24.95 paper).

—MW

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL
FIRST-CLASS MAIL PERMIT NO. 230 JOHNSON CITY, TN
POSTAGE WILL BE PAID BY ADDRESSEE

Now & Then
Center for Appalachian Studies and Services
East Tennessee State University
Box 70556-1707
807 University Pky
Johnson City TN 37604-9905

Praise for ***Now & Then:***

"***Now & Then*** captures the real spirit of Appalachia better than any other publication. I find news and features here that I never see anywhere else, plus wonderful fiction and poetry. I consider ***Now & Then*** indispensable reading for myself and for anybody else who truly cares about our region's rich heritage or about what's happening now."
Lee Smith

"When people ask me about Appalachian life and lore, ***Now & Then*** is the first periodical I direct them to. It brings a feeling of mountain life and people that is irreplaceable, matched in no other publication, Appalachian or otherwise. ***Now & Then*** is always a welcome presence in our house."
Fred Chappell

"***Now & Then*** keeps me in touch and informed, and is a must for anyone interested in the past, present, and future of the region."
Robert Morgan

brittle stalks, bursting out upon the world as
young lovers do—trysting in the tall grasses,
resting fingers lightly in tousled hair.
Listen, and you can hear them whisper
in the rushes, gazing out at us, wondering—
what lives are these?

—Bradford Tice

Bradford Tice recently graduated from the University of Tennessee at Knoxville, where he studied creative writing under Now & Then *contributors Marilyn Kallet and Arthur Smith. Tice's poetry has appeared in* Mississippi Review *and* Firefly Magazine, *and has been accepted by* Appalachian Magazine *and* Hawaii-Pacific Review. *He has won awards from the Knickerbocker Poetry Contest and the Margaret A. Woodruff Creative Writing Competition.*

Late August, Walking the Ridge

Possum grape and shadows
climb trunks of old locust,
snake-like where mostly I'm silent,
moving through a twilight

that moves, its language
the pulse of a thousand cicadas
whose rhythm reminds me
of what I could never say.

Better to name aboretumis thistle,
whirling emporeia in bloom,
these seedpods like heavy fringe
on a lantern in my great aunt's

garden. How many decades
since that rice-paper confection
fell in November rain, its exotic
colors—scarlet and mustard, fuchsia

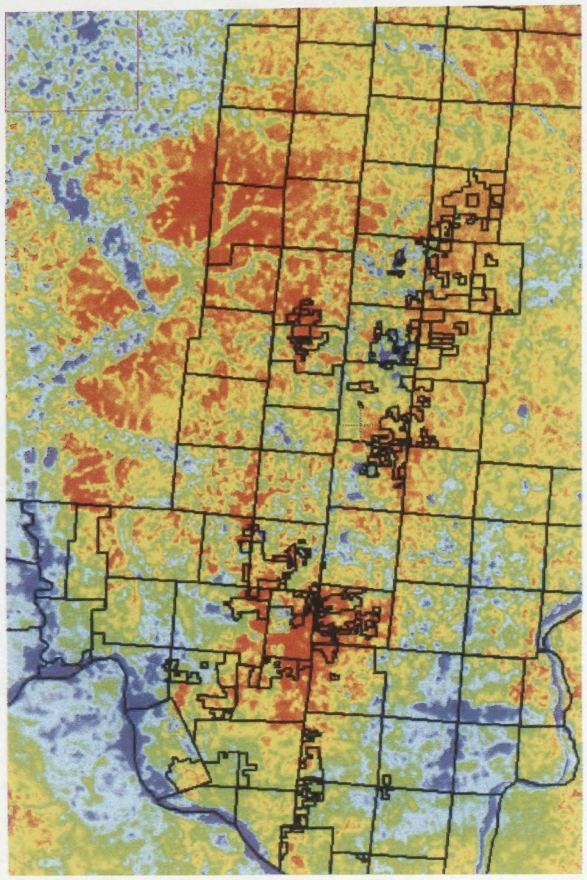
and indigo—melting forever
into a soggy pile of leaves?
But I remember it now—all that
luscious, pale green fringe,

my mother swaying to Sinatra
who crooned in silver static
on a Phillips radio, singing
the lantern shadow of a smile.

—Julie Kate Howard

Julie Kate Howard is the author of Wind Shifts *(Placebo Press) and* Elegy in Pieces *(Nightshade Press). She has work forthcoming in* Asheville Poetry Review, Crazyhorse, Cold Mountain Review, Grasslands Review, North Carolina Literary Review, Tar River Poetry, *and* Pembroke Magazine. *She teaches at the North Carolina Folk School at Brasstown.*

East Tennessee State University is one of 46 institutions in the Tennessee Board of Regents system, the seventh largest system of higher education in the nation. The Tennessee Board of Regents is the governing board for this system which is comprised of six universities, 14 community colleges, and 26 area technology centers. The TBR system enrolls 80 percent of all Tennessee students attending public institutions of higher education.
Tennessee Board of Regents: Edgar R. "Buddy" Bowers, Harriman; Demetra Godsey Boyd, Clarksville; Noble Cody, Cookeville; The Honorable Vernon Coffey, Commissioner of Education, Nashville; Robert Jack Fishman, Morristown; Arles B. Greene, Goodlettsville; Clifford H. "Bo" Henry, Maryville; Jane G. Kisber, Jackson; W. Keith McCord, Knoxville; Leslie Parks Pope, Kingsport; Richard G. Rhoda, Executive Director, Tennessee Higher Education Commission, Nashville; J. Stanley Rogers, Manchester; Maxine A. Smith, Memphis; Bethel Arrita Summers, Faculty Regent, Tennessee Technology Center at Dickson; The Honorable Don Sundquist, Governor of Tennessee, Nashville; William H. Watkins Jr., Memphis; The Honorable Dan Wheeler, Commissioner of Agriculture, Nashville; Derreck Whitson, Student Regent, East Tennessee State University, Dandridge.



Department of Geography, Ohio University

A Relic Landscape

Ohio University geographers used a Landsat satellite image to analyze the environmental effects of iron production on parts of Appalachian Ohio and Kentucky. The researchers have overlaid this satellite image with a black grid showing land once owned by charcoal furnace companies. Color reflects relative productivity and vigor of vegetation. In this image, red represents vigorous forest vegetation while blue represents unproductive land. For more information about Ohio's historic charcoal and iron furnace industry and why these lands may have recovered so well, see "From Ravaged to Recovered" by Timothy G. Anderson on page 29.

NOW & THEN
THE APPALACHIAN MAGAZINE

Center for Appalachian Studies and Services
East Tennessee State University
Box 70556
Johnson City, TN 37614-1707

Address Service Requested

Nonprofit Organization
U.S. Postage Paid
Johnson City, TN 37601
Permit No. 194

Coming up:

SPRING 2002
APPALACHIA AND THE WORLD

SUMMER 2002
FIRST PERSON APPALACHIA

Property of Archives of Appalachia
East Tennessee State University